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Investigation on the possible causes of declining dry cargo throughput at Dar-es-Salam port

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INVESTIGATION ON THE POSSIBLE CAUSES OF DECLINING DRY CARGO THROUGHPUT AT DAR-ES-SALAAM PORT

By

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DECLARATION

I certify that all the materials in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily by the University.

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ABSTRACT

Title of the Dissertation : **Investigation on the Possible Causes of Declining Dry Cargo Throughput at Dar-Es-Salaam Port**.

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Dry Cargo Throughput at the port of Dar-Es-Salaam is declining. Two reasons were thought to be the possible reasons for the decline. One, poor quality of service at the port. Hence, customers are shifting to other ports particularly, Mombasa and Durban. Second, the ability of the port's hinterland to generate dry cargo is declining.

The research intended at examining these two reasons in order to find out whether, they are actually the causes of the declining dry cargo throughput at the port of Dar-Es-Salaam or not.

Facts about the port's quality of service and its hinterland's ability to generate dry cargo were collected and analysed. After doing the analysis, the following have been found out:

1. The quality of service at Dar-Es-Salaam port is poor. It is more or less the same to the quality of service at Mombasa port. The quality of service at the port of Durban is much better than, the quality of service at Dar-Es-Salaam port.
2. Dar-Es-Salaam port is not losing cargo to Mombasa port.
3. Dry cargo throughput at Dar-Es-Salaam port is declining because one, the port is losing cargo to the port of Durban and two, most of its hinterland ability to generate dry cargo is declining.

Various ways for improving the quality of service, maintaining the port's market share and attracting more dry cargo towards the port have been recommended.

KEYWORDS: Investigation, Analysis, Quality of service, Dry cargo generation, Decline, Improve.

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LIST OF ABBREVIATIONS

AGV	Automatic Guided Vehicles
CRM	Customer Relationship Management
DRC	Democratic Republic of Congo
DRMG	Doppel Rail Mounted Gantry Cranes
DSM	Dar-Es-Salaam
KPA	Kenya Ports Authority
N/A	Not Available
NASACO	National Shipping Agency
RMG	Rail Mounted Gantry Cranes
RTG	Rubber Tyre Gantry Cranes
SATCC	South African Transport Co-ordination Committee
SSG	Ship to Shore Gantry Cranes
SSHEX	Sunday, Saturday and Holidays Excluded
TAFFA	Tanzania Freight Forwarders Association
THA	Tanzania Harbours Authority
TAZARA	Tanzania-Zambia Railways
TRC	Tanzania Railways Corporation
UNCTAD	United Nations Conference on Trade and Development

CHAPTER ONE
OVERVIEW OF THE DISSERTATION AND DAR-ES-SALAAM PORT

1.1 Introduction

This dissertation was written in order to satisfy one of the requirements of the Master of Science (MSc.) in Port Management, at the World Maritime University. It is comprised of five chapters, namely:

i. *Introduction.*

This part is divided into two main sub-parts including an overview about the Dissertation and an overview on the port of Dar-Es-Salaam (DSM). The overview about the research explains the problem and objectives of the research, research methodology, significance of the research and its scope and limitations. The introduction about the port gives a general view of the port.

ii. *Literature review*.

It is divided into two parts too including theoretical literature review and, empirical literature review. The theoretical literature provides a general information on ports especially that, which is related to the factors that affect ports performance and throughput in general, as explained in different available written literature. The empirical literature explains the experience of some ports in the world on the factors which, they identify as of prime importance for improving the competitiveness of ports, performance in general and cargo throughput in particular.

iii. *Performance of Dar-Es-Salaam port.*

In this part, data and facts on the performance of the port, particulary those showing the quality of service including: productivity, ship time in port and cargo dwell time are presented and analysed. Explanation on security of cargo and customer service is given too.

vi. *Traffic generation by the hinterland of Dar-Es-Salaam port.*

Under this part, facts and data on the volume of cargo generated by the port's hinterland are presented. The possible factors which affect the port's hinterland ability to produce more dry cargo are also presented and analysed.

v. *Conclusion and recommendations*.

This part gives a summary on the findings of the research. Recommendations on how to solve the identified problems are also given.

1.2 Overview of the Dissertation

1.2.1 Statement of the Problem and Problem Background

The problem of the research is, declining dry cargo throughput at Dar-Es-Salaam Port. This probem is indicated in Table 1 and Figure 1 on page 3.

From Table 1 and Figure 1, it can be seen that, the growth of dry cargo throughput has been fluctuating. Between 1991 and 1992 and between1992 and 1993, the throughput increased by 23.8% and 4.6% respectively. In 1994, it dicreased by 15.6%. In 1995 and 1997, it increased by 0.7% and 10.2% respectively. In 1996, it dicreased by 20.1% and in 1998, it dicreased by 0.9%. The average growth rate is 0.3%. The throughput in the last three years is lower than that of 1991.

The highest volume of traffic was achieved in 1993 followed by 1992. From 1994 to 1998, the throughput was less than that of 1993 and 1992. For example, in 1998,

Table 1. Dry Cargo Throughput at Dar-Es-Salaam Port (In metric tonnes)

Years	Imports	Exports	Total	%ge Change 1	%ge Change 2
1991	1.028.091	866.169	1.894.260		
1992	1.516.017	829.775	2.345.792	23.8	
1993	1.567.666	885.317	2.452.983	4.6	
1994	1.370.053	701.054	2.071.107	-15.6	-15.6
1995	1.347.535	736.977	2.084.512	0.7	-15.0
1996	969.107	696.792	1.665.899	-20.1	-32.1
1997	1.292.483	543.794	1.836.277	10.2	-25.1
1998	1.290.262	529.424	1.819.686	-0.9	-25.8
Average	1.297.659	723.663	2.021.315	0.3	22.7

(1) Yearly changes . (2) Changes from 1993.

Source: DSM Port Statistics Department

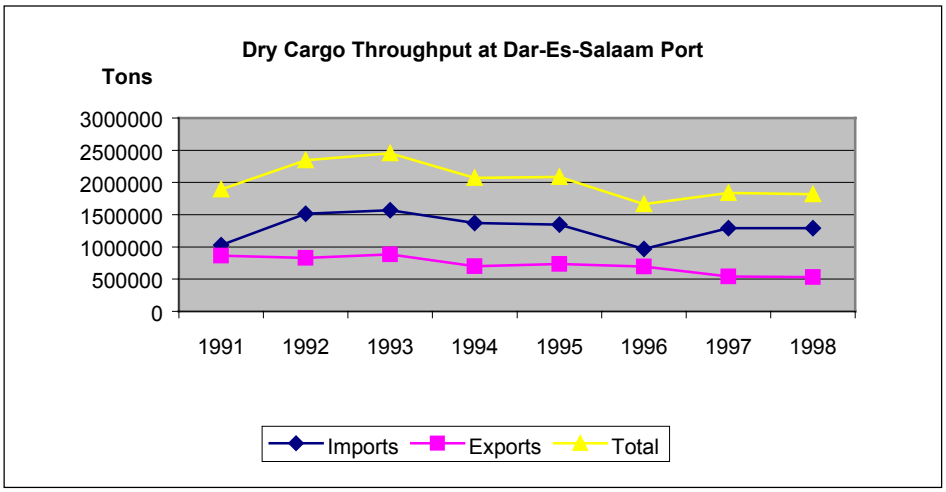


Figure 1.

the throughput handled was 25.7% less than that of 1993. From 1996 to 1998, the port handled less throughput than the throughput it handled in 1991. In 1998, the throuput was 3.9%less than in 1991. Due to this fact, despite the fact that, the average growth rate of dry cargo is 0.3%, it is said that, dry cargo throughput is declining.

1.2.2 Objectives of the Research

The objectives of the research were:

i. To show the trend of dry cargo throughput at the port of Dar-Es-Salaam from 1991 to 1998

ii. To identify the possible factors affecting the growth of the volume of dry cargo through the port.

iii. To examine the quality of service at the port and analyse it.

iv. To examine the port's hinterland ability to generate dry cargo and to identify the possible factors which, affect the port's hinterland ability to generate dry cargo.

v. To make recommendations on how to improve the factors that affect the throughput so that, more cargo can be attracted to pass through the port.

1.2.3 Study Methodology

Under this, methods for data /information collection and analysis are explained.

1.2.3.1 Data Collection

Secondary data and information was collected from the port. The data and information collected was on the performance of the port particularly, the performance concerning the quality of service and dry cargo throughput. Also information on the market problems and marketing strategies was collected. Questions were prepared (see Appendix A) and sent to relevant port officials before meeting and having discussions with them. The questions were for enabling the officials to prepare the required information, to ensure that, important issues were not overlooked and they were for provoking discussions. The information on the port's performance was collected from the Principal Statistics Officer while that, on the marketing was collected from the Senior Marketing Officer. Also, information on the dry cargo throughput at the main Dar-Es-Salaam port's competitors that is, Mombasa port in Kenya and Durban port in South Africa was collected from Internet, annual reports of the ports and port magazines. The information collected

about the three ports include ship-turn round time, cargo dwell time, delay time, productivity, equipments and cargo security. Information about customer service, market problems and marketing strategies was also collected for Dar-Es-Salaam port.

Different written sources including books and handouts were consulted for theoretical literature review. Information for the empirical literature review was collected from ports' magazines, internet, lecture handouts and notes on particular ports.

1.2.3.2 Methods of Analysis

Two factors were thought to be the possible causes for the declining dry cargo throughput. These factors are one, poor quality of service and two, port's hinterland inability to produce adequate quantity of dry cargo. The research aimed at proving whether these two factors are actually the ones that, cause the throughput to decline or not.

The performance of the port in terms of productivity, container dwell time, vessel time in port and security of cargo is measured by comparing it with the performance of other ports in other countries and with the International Standards. The ability of the hinterland to generate cargo which, can pass through the port is analysed by looking at the economic development of Tanzania and that of the landlocked countries which pass their cargo through the port. If the economic development is poor, it is concluded that, it is one of the causes for the declining cargo throughput. It is also analysed by looking at the total dry cargo throughput at the main competing ports that is, DSM, Mombasa and Durban. If the throughput at these ports is also not increasing, it is concluded that, the hinterland's ability to generate dry cargo is poor. If the traffic at the competing port(s) is increasing, it is concluded that, some shippers have decided to use the other port(s) instead of the port of Dar-Es-Salaam because, the quality of service provided at the port of is poor. In case the total dry cargo traffic is increasing, it is concluded that, the hinterland's ability to generate

cargo is growing. The throughput at Dar-Es-Salaam port is not growing because, the port is not competitive. In additional to these, various factors which affect the hinterland's ability to produce adequate cargo are examined.

1.2.4 Significance of the Study

The significance of the study is that, the declining cargo throughput at the port is a threat to the port's and the Government's revenue prospects and to the country's general economic development. Also, failure by the port to handle adequate amount of cargo leads to under utilisation of its facilities. For example, it utilises only 50.2% of dry cargo annual capacity while, the recommended utilisation is 60% (Horck, J. 2000). Its average berth occupancy is only 52.2% while, the recommended berth occupancy for eight berths and above is 78% (Francou, B. 2000). As a result of this, the port will either generate less revenue or incur losses. Due to this, the Government will get less revenue or no revenue at all. Consequently, it will fail to fulfil its obligations.The recommendations which are given in this dissertation, will certainly help to improve the situation.

1.2.5 Scope and Limitations

The research covers a period from 1991 to 1998. It considers only dry cargo throughput which, includes general cargo and containerised cargo. There are many factors which affect cargo throughput in ports, this dissertation has analysed only the quality of service factors and the hinterland's ability to generate dry cargo. This dissertation would have been better if transit dry cargo through the port of Durban to Zambia, Malawi and other countries was obtained. Despite of the efforts made by Haluod L. of Durban port to provide me with the data, the specific type of data which was required, was not obtained. It was also not possible to get detailed data on the throughput of each type of dry cargo at each of the three ports. The data would have indicated which cargo in particular, its volume is declining at Dar-Es-Salaam port and whether, it is increasing at the other ports or not.

1.3 Overview of Dar-Es-Salaam Port

Dar-Es-Salaam port is one among three main ports which are under the Tanzania Harbours Authority (THA). The other ports are Tanga and Mtwara. The port of is the largest and the most important among the ports. It handles about 90% of the total traffic through the three ports (THA Corporate Plan 1996/7-2000/01).

The Tanzania Harbours Authority is a parastatal organisation. It manages and operates the ports on behalf of the Government which is the owner of the ports. The Mission of the organisation is ``to be the gateway for the Eastern, Central and South Africa International trade, totally dedicated to providing and facilitating quality, value added, competitive and profitable ports and state of the art technology and highly motivated workforce'' (THA Annual Report, 1997/1998). The objectives of the port are as follows:

- To provide facilities and operate a co-ordinated system of harbours in accordance with the provision of the Act establishing it.
- To provide facilities relating to harbours services and services ancillary thereof.
- To act as warehousemen and store goods whether or not the goods have been or are to be handled as cargo by the Authority.

The port of Dar-Es-Salaam has three dry cargo terminals which are as follows:

1. General Cargo Terminal

This Terminal has eight berths for handling general dry cargo Vessels. They have a length of 1.464 m. It has a shed measuring 81.040 m^2. It also has an open storage area of 52.440 m. Its capacity is to handle 2.5 Million tons of general cargo per year. Cargo handling equipment at this terminal is shown in Table 2.

Table 2. Equipment at General Cargo Terminal

Equipment Type	Capacity-Tons	Quantity
Forklifts	2.5 to 3.5	81
”	5	16
”	10	1
Tractors	N/A	48
Trailes	N/A	79
Vacuvators	N/A	6
Grabs	N/A	29

Source: THA Corporate Strategy (1996/97-2000/2001)

2. Container Terminal

This Terminal covers a total lenght of 540 m. It is comprised of three berths. The depth of its berths is 12.2 m. The stacking capacity within the port is 3000 TEUs and 54 TEUs for reefers.

There is an inland container depot located at Kurasini, about two Km away from the port. This has a shed of 16.000 m^2 capacity. It has an open stacking area which can stack 800 TEUs. The total terminal's annual capacity is 120.000 TEUs, equivalent to 1.5 million tons. The terminal cargo handling equipment is shown in Table 3.

Table 3. Container Terminal Equipment

Equipment Type	Capacity (Tons)	Quantity
SSG	35.6	3
RTGs	36.5	8
RMG	36.5	1
Loaders	42.0	13
Mobile Cranes	5 to 25	37
Forklifts	2.5 to 9	76
Empty Handles	13 to 16	18
Trailers	40.0	116
Trailers	5 to 25	42
Tractors	30.0	66

Source: THA Corporate Strategy (1996/97-2000/2001)

3. Grain Terminal

Bulk cargo such as maize, wheat and fertilizer are handled at the grain terminal which has fully automated silos. Other facilities at this terminal include three bagging units and a fleet of ten Dump Trucks. The Silos have a capacity to store up to 30.000 tons of grain at any time.

Its entrance channel is 13 m at high tide and 140 m width since 1998. It allows ships of maximum length of 234 m at any time of the day. It operates from Monday to Friday, day shift 0700- 1500 and afternoon shift is between 15:00- 23:00 (normal working hours) and night shift from 23:00- 07:00, Saturdays, Sundays and Public holidays (over time). On average, 713 dry cargo deep sea vessels call at the port annually. In 1998, 801 ships called at the port.

The port serves Tanzania as well as land locked Countries including: Zambia, Malawi, the Democratic Republic of Congo (DRC), Burundi, Rwanda and Uganda. The last four countries are sometimes referred to as the Great Lakes Countries. Major imports through the port are; machinery, rolling stock, petroleum and its products, fertiliser, chemicals, grain and a large variety of industrial and consumer goods. Export tonnage is mainly made up of coffee, cotton, copper, tea and tobacco.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

As explained in chapter one, this chapter is divided into two main parts, theoretical and empirical literature. The aim of having this part was to enable the researcher and author as well as readers of this dissertation, to get a general knowledge from the available literature and to get experiences of other ports on the various factors which, can affect ports' performance particularly, ports' throughput. It also helps to show a clear picture on the position of the port of Dar-Es-Salaam, as far as performance on the provision of service is concerned by looking at what other ports do. The aim was also to find out possible methods of improvement from some of the available literature. The knowledge is useful for recommending on what should be done, in order to improve the performance and consequentlly, the throughput at Dar-Es-Salaam port.

2.2 Theoretical Literature Review

Theoretical literature review is explained under five sections including meaning and evolution of ports, ports as sub-systems of the transport system, factors for choice of ports, types of management of ports, and importance of ports in economic development.

2.2.1 Meaning and Evolution of Ports

A port is a harbour having facilities for ships to moor and load or discharge. A port is sometimes referred to as ship/shore interface or a Maritime intermodal interface Alderton (1995, p. 253). Ports have to change over time due to the following factors:

- The development and improvement of overland transport which can lead to a need for a port to be bigger.
- Changes in trade patterns which can affect a port either negatively or positively.
- Changes in financial and logistics thinking. A port can become an Industrial area/ a marketing and distributuon centre.
- Changes in ship size with need for more water in the docks and approaches and the associated need for faster cargo handling equipment that leads to shorter ship turn-round times.

Due to a need for changes to take place in ports, ports have been changing from one generation to another as shown in Table 4 .

Table 4. Evolution of Ports

First Generation: Before 1960	Main cargo: break-bulk Attitude: conservative Development strategy: changing point of Transport mode Decesive factors: labour and capital Scope of activities: loading/offloading of Cargo
Second Generation: After 1960's	Main cargo: brak-bulk,dry/liquid bulk Attitude: expansionist Development strategy: transport, industrial and Commercial centre Decesive factor: Capital Scope of activities: -cargo transformation, -ship-related industry, -commercial services and -enlarged port area
Third Generation: After 1980's	Main cargo: bulk and unitised, containerised Attitude: commercially oriented Development strategy: intergrated transport node & logistic centre Decesive factor: technology and know-how Scope of activities: in addition to the previous ones -Cargo information and distribution -Logistics activities -Terminals and distribelt on landslide

Source: Port Marketing & the challenges of the 3rd Generation Port-UNCTAD Report, 1990. In Alderton, M. P. (1995. P. 258).

With changes taking place in ports, ports are not only what the traditional definitions of a port mean. Currently, ports are also industrial and distribution centres with advanced information technology.

2.2.2 Ports as Sub-systems of the Transport System

Ports are part of the International Transport System which includes port, shipping, land journey (which could be lorry, train, pipeline, conveyor), storage and goods handling at loading and discharging ports. As Stopford (1997) said, a transport system is a transport operation which has been designed so that, the different parts of the system link together as efficiently as possible. Like any other system and its parts, if any part of the transport system is not functioning efficiently, it will negatively affect the other parts and the whole system. The aim of the system is to move cargo as efficiently as possible over the whole distance from origin to destination. If this aim is achieved, more business can be won. Some of the ways for achieving this are :

i. To make cargo handling operation more efficient by use of high productivity handling equipment.
ii. Intergration of transport where each component is designed to fit in with the others.
iii. Provision of good service which includes frequent service, reliable, advanced information about vessel arrival and departure times, speed and security/safety of cargo. Reliability has become very important due to growing importance of just-in-time supply of stock. Stopford (1997, pp. 11, 294-296) said, some shippers may be prepared to pay more for a service which is guaranteed to operate to time and provide the service which is promised.

2.2.3 Factors Affecting Choice of Port

Lodder, (1997) pointed out the following to be the factors influencing the choice of a port:

- Location
- Potential traffic base
- Connectivity (multi-modal)
- Terminal-Port efficiency
- Financial considerations
- Legal / Institutional factors
- Nautical approach

According to Grimwade, (1989), Cost of transport, speed, reliability, safety/security of cargo are the main important factors in the choice of the means of transport, transport operators and routes. Failure to provide good service may result into loss of customers especially where there is competition. Under competition, ports are supposed to be innovative, thinking of various ways on how to improve efficiency and service provision so that, customers can be attracted. Alderton (1995, p. 262) pointed out that, ports now have to compete for cargo very much than in the past, hence, great efficiency and value added activities (like cargo consolidation, distribution centre, crating, weighing, repacking, etc.) are needed. Brian and Roach (1995) have indicated that, if an adequate stock of the right type of equipment is not provided, cargo handling rate will be low. Shipowners may bypass the port or leave older ships on those routes. According to Taylor (1985), fundamentally a port grows by virtue of the trade it can attract and maintain. To be able to do this, provision of services which can meet customers' needs is important. Currently, customer relations management (CRM) is also considered to be a very important marketing strategy in this era of globalisation and severe competion. Gray, (2000) said, ``the success of the organisation do not only depend on the quality of customer service offered, but also on the relationship with shippers. Forging a stable relationship with a customer can play an important part in establishing competitive advantage''. CRM requires organisations to intergrate and link their most important customers to their information systems and dealing with individual customers' needs, knowing his business and being able to help and

solve his problems. The Swedish Ports' and Stevedores' Association (2000) emphasized that, ``it is absolutely vital that, ports improve their efficiency and productivity in order to keep or hopefuly, regain shares. It is a well known fact that, the bottleneck of sea transport is the port, where goods have to be loaded or discharged''. For a port to be successful, both players at the port as well as the Government have to play well their roles. The promotion contenders said, the promotion role played by Governments can have a direct bearing on the success of those in the port related industries (Promotional contenders, 9/10 1999).

2.2.4 Types of Management of Ports

There are different types of management which ports can adapt. These types are show in Table 5.

Table 5. Port Management Options

Type	Infrastructure	Superstructure	Stevedoring labour	Other functions
Landlord Port	public	private	private	public/public
Tool Port	public	public	private	public/private
Public Service Port	public	public	public	majority public
Private Service Port	private	private	private	majority private

Source: Port Management Models and Privatisation- Handout. Rotterdam. April, 2000.

A landlord port is owned by the public. The public provides the infrastructure and it leases the port to private people. The private companies provide their own superstructre and deals with stevedoring activities. Other functions are done by both the public and the private companies. Tool ports are owned by the public and the public provides both the infrastructure and the superstructure. Stevedoring activities are done by private stevedoring companies. Public service ports are owned by the public and almost every thing is done by the public while, Private service port are owned by private companies and almost every thing is done by them.

2.2.5 Importance of Ports in Economic Development

Transport is very important in the economic development of any country. Good transport system acts as a catalyst for economic development. It boosts agriculture and industrial production. As more and more economic activities are created/expand, more and more transport development and expansion is required. Generally, tranport development and economic development depend on each other. Due to the existance of this kind of relationship between tranport and economic development, it is said that, transport demand arises in order to satisfy other demands. Without demand for transport, there will be no need for it.

The volume of demand for transport is determined by the level of economic development. The level of economic development is measured by the rate of growth in the Gross Domestic Product (GDP). Stopford (1997, p. 238) said, a growth in GDP leads to increased demand for transport. A measure of economic output is divided into nine different sectors including Agriculture, Mining and Manufacturing. These are directly involved with trade, either through imports or exports. Other sectors are Construction, Wholesale and Retail trade, Transport and Communication and other services. Growth in these activities lead to growth in demand for sea transport in this case. In order to boost economic growth, both producers and Governments have to play their role.

Where there is no enough traffic, ships will not go. According to Taylor (1985) , ships change routes from where markets are unprofitable to elsewhere where more and newer raw materials become available and financial investiment in the economy of developing countries has enabled them to compete and require goods and equipment to support their economic progression.

Efficient ports contribute towards building a country's economy. If a port is efficient, it will attract more ships and cargo thus, enable the Government to get

adequate revenue and, the port will have a higher contribution to the country's GNP. Also, if the port is efficient, importers can import and sell at cheaper prices which can be affordable by the majotity of people. Cheap prices will help to improve peoples living standard. Brian and Roach (1995, p. 8) said, if a port is inefficient, older ships will go to that route as a result. Shippers will not be able to obtain competitive freight rates, the country's imports will be more expensive than they should be and its exports will be uncompetitive as they enter international seaborne trade.

From this literature review, among the things which have been learnt are that, if the quality of services provided at a port are not good and if, there is poor economic development which leads to inavailablity of enough traffic, ship owners and shippers will change routes. Basing on these, it was thought that, possibly, services which are provided at Dar-Es-Salaam port are not good hence, ship owners and shippers have decided to go to the ports which compete with DSM port. It was also thought that, the economic development of its hinterland is not good too, hence, its ability to generate enough traffic is negatively affected. These factors among others, have lead to declining dry cargo throughput at Dar-Es-Salaam port. The research intended at proving whether these assumptions are true or not.

2.3 Empirical Literature Review

As explained earlier, this section explains experience from other ports on the factors which they identify as factors affecting cargo throughput/success factors. It also explains the strategies they use for being competitive in the market and thus, being able to maintain or attract more cargo throughput.

2.3.1 *The Port Authority of Algeciras Bay*: This authority believes that, good infrastructure and customer service are the foundation for keeping the port at the forefront of other ports. Hence, they have a programme for service improvement

ahead of customer needs and infrastructure improvement. They believe that, these are two pillars to recover its leadership in the Mediterrenean, despite more and more intensive competition in traffics (Puerto Bahia de'Algeciras, 15/11/98).

2.3.*1* *The Port of Århus*: This port extensively uses EDI. With this equipment, there is no physical movement of people. All information regarding vessel operation that is, planning, arrival of vessel, order to load a vessel or a container, control, reporting, rail operation, receiving and deliverying are communicated through computer. Container movement and tracing is controlled by use of cameras and computers. These equipment facilitate quick communication and improved security of cargo.

The port has high capacity cranes. It has cranes which can handle 65 containers per hour (loading and off-loading at the same time). Crane productivity is 35 TEUs per hour. It has wheel stackers which can stack up to 60 containers per hour. Up to 101 containers pass through the gate per hour, this is the situation because, they have automated gate system. All customers of the port are on the line every day. The port identifies the following to be critical success factors:

- continuos running of computer and
- information system - equipment, know-how, innovation and procedures .

It has severe competion from the port of Hamburg hence, the Århus stevedoring company try to optimise logistics and be more productive. Due to their efficiency, the TEUs increase at 10% on average per year. The trend of general cargo is decreasing (Nielson, V. Lecture, 2000).

2.3.3 *The Port of Bremen*: At this port it is said that, the advantageous of quality of service in Bremerhaven are excellent competitive arguments. Another advantage is fast hinterland traffic via rails and highways. A balanced ratio of imports and exports is one of its stregths. This attracts shipping lines because, they can discharge and load at the same time. The port has high productivity equipment like Jumbo

cranes, Post panamax cranes with capacity of 75 tons and van carriers. These enable the port to have productivity of 25 containers and 30 moves per hour. A ship stays at the port for 8 to 16 hours (The BLG in Bremen and Bremerhaven, 1998).

2.3.4 *The Port of Hamburg*: This port is owned by the city of Hamburg but operations are done by different private companies. The city provides infrastructure while private operators at its different terminals provide the superstructure. The port is well connected to its hinterland. There are feeder services, rail services overnight, lorries and baltic ferries and barges. It has advanced equipment, uses computer technology and highly qualified and experienced specialists (Port of Hamburg, 1998).

One of its container terminal operators-HHLA has the following equipments, RMG, Automatic guided vehicles (AGV), straddle carriers,and front loaders. The terminals productivity is 20 boxes per crane per hour. Productivity of DRMG with AGVs is 45 boxes per hour. Hence, the average produtivity is about 30 containers per hour. Container dwell time is 4 days (Blauert, C. 2000). The port believes in training and flexibility in the use of operators like of cranes and reduction of labour cost while, increasing equipment utilisation as key factors for achievement of high productivity and thus, to be able to be competitive. It is the most expensive port among eight (from Hamburg- Le-havre range) competing ports, however, its throughput is growing -see Table 6 (Rotterdam Annual Report,1998).

2.3.5 *Malta Free Port Corporation*: This port was a state owned port formed under Corporations Act. Now, it is a company but still owned by the state. It operates like any private company without interference of the government and government bureaucracy is avoided. The port ensures a leading role in containerisation industry by using various computerised systems aimed at enhancing efficiency. Customers have access on an online basis which enables them to have on

time information of the entire container handling cycle. With this system, the terminal realises the following benefits:

- increased gate productivity
- reduced truck turn-round time
- improved labour utilisation and productivity as it enhances data entry
- enhances container movements update, vessel shedules and on line allocation of containers in the yard (Malta Free Port Magazine, 1999, p. 14).

It has different types of equipment for example, its terminal two has the following equipment, five post panamax quay side cranes and ten RTG cranes. It uses mult-trailer system to enhance flexibility whilst also guaranteeing fast movement of containers between terminals. Productivity at the terminal is 18 moves per hour. Between 1997 and 1998, TEUs increased by 62%.

The company believes in training and high personnel flexibility as essential and important ingredients to achieve a more productive and efficient workforce. It also believes in customer satisfaction as a key success factor. The port people attend user group for shipping lines and container terminals meetings.

2.3.6 Malmö Port: At this port, flexibility in the use of labour is identified as key factor for better utilisation of manpower too. At the port, dock workers are also crane operators. Ships crew also do lashing of containers. Productivity is 25 boxes per hour, 150 tons per hour per crane for bulk cargo and 12 tons per hour per gang for pre-sling bagged cargo. Turn-round time for Bulk cargo ship (7000 tons) is 7 days, for container ship is 4 hours, for a ship carrying sugar (5000 tons), it is 3 days working hours. On average, it handles 1222.3 tons per ship day. It provides 7 days free stay of cargo at the port (Anderson, Malmö Port Traffic Operations Manager, lecture notes, April 2000).

2.3.7 *The Port of Rotterdam*: This port is owned by the Rotterdam Municipal council and managed by the Rotterdam Municipal Port Management (RMPM). The municipal provides infrastructure and leases land to private operators. Private operators provide the superstructure. The port has different types of advanced cargo handling equipment including straddle carriers, RMGs and AGVs. There are 191 multipurpose cranes, 72 gantry cranes, 30 tugs and other types of equipment. It has 750 leasees (Crook, G. 2000). It recognises the importance of customer service management, as a result of this, they have dedicated terminals to their most important customers like Maersk Delta BV. At the port, it is said that, `` within an environment characterised by globalisation, enlargement in scale and supply chain management, intensified cooperation with both suppliers and purchasers is becoming an ever important condition for maintaining or strengthening Rotterdam's competitive advantage''. The RMPM sees safe, smooth operations of shipping traffic and provision of good facilities as key factors for success. The average productivity at the port is 25 containers per hour. Its throughput is shown on table 6. Despite the fact that, the port has a number of competitors, in 1997 and 1998, the throughput increased by 6.2% and 1.5% respectively (Port of Rotterdam Annual Report, 1999). Its transhipment is growing and it is expected to continue growing, its turnover is expected to grow at 25%. This is because, the economy of its hinterland-Netherlands, Germany and Poland is expected to grow positively. This shows a direct relationship between the hinterland's development and the port's throughput development. It is also said that, the centre of excellence for port throughput systems are product innovation and research and development. (Llyod's Port Management, 9/10, 1999. p. 38). Various industrial activities like, petro-chemical refinery, packaging and distribution, metal recycling, plastic and rubber recycling are done at the port.

The customs at the port has an X-ray container scan. Before they had this scanner, they used to check one container for four hours but now, the machine scans seventy containers a day among which, about only ten containers are checked physically. The scanner has a capacity to scan twenty containers per hour and when it works at

its full speed, it can process five hundred containers per day (Port of Rotterdam, December, 1999). Different activities at the port are remotely controlled and communication is done through computers.

Table 6. Throughput at the Ports of Rotterdam and some of its Competing Ports (In million tonnes)

Years	Hamburg	Bremen	Amsterdam	Rotterdam	Antwerp	Le-Havre
1998	75.8	34.4	55.8	314.8	119.8	66.4
1997	76.7	34.0	56.5	310.1	111.9	59.7
1996	71.1	31.5	54.7	292.1	106.5	56.2
1995	72.1	31.2	50.3	293.4	108.1	53.8
1994	68.3	30.9	48.1	293.9	109.5	54.4

Source: Rotterdam Municipal Port Management: Annual Report, 1998.

2.3.8 *At Sea Malta Port Corporation*: They believe that, efficiency which involve reduction of cost and time is a key factor for success. In order to be able to satisfy their customers, customers opinions are sought. Every employee fills complaints from customers in customers' complaints form for action to follow. Also, customers and workers discuss together about the quality of service. They also believe that, the main marketing tool is contact with the customer.

2.3.9 Weatherproof Cargo Handling Comapany at the Port of Amsterdam. At this company, it is believed that, companies nowadays do not compete through pricing but by the quality of service. They also believe in training of employees on the effect of cargo damages as a key factor for success. In order to avoid delays due to bad weather and thus, being able to provide quick vessel turn-round time, they have covered their berth. This enables them to do loading and off-loading activities under any kind of weather (Lecture notes from the company, 14/4/ 2000).

2.4 Summary

Both theoretical and empirical literature identify more or less the same key success factors for being competitive, maintaining and attracting more throughput. The

factors that are identified are as follows: high capacity cargo handling equipment, provision of safe, smooth and efficient cargo handling services, provision of good facilities tailored to the needs of the customers and ensuring the shortest ship turn-round time, good and close relationship with customers and good quality of customer service. It has also been observed that, the quality and provision of timely service is more important than cost. Other factors are good infrastructure, use of EDI, use of computers and cameras for container tracing, avoiding 100% physical checking of cargo and use of container scanners for cargo checking and clearance, research and development, innovation, training of employees and flexibility in the use of labour. In additional to these, involvement of major customers in ports' decision making and quality control bodies, reducing labour utilisation while increasing equipment utilisation, working without stopping due to bad weather and having advanced information technology, industrial and distribution activities adds to a port's competitiveness. Further to these, it has been observed that, the development in ports' traffic throughput depends very much on the economic development of their hinterlands. For a particular hinterland's economy to be able to develop, both producers and Governments have to play their role.

CHAPTER THREE
QUALITY OF SERVICE AT DAR-ES-SALAAM PORT

3.1 Introduction

Port activities involve four main types of activities namely, ship operation, quay transfer operation, storage operation and receipt/delivery operation. These operations are interelated and interdependent. Failure to perform one of the operations as desired may unfavourably affect the performance of other operations and as a result, the performance of the port as a whole will be affected. Poor performance of these operations also adversely affects the quality of service and customers satisfaction. Hence, in order for a port to achieve desired or good performance, all these operations have to be properly planned and implented. The performance of each of these has to be measured in order to know whether it is good or not so that, if it is good, ways for making it better can be thought of and if it is not satisfactory, corrective measures can be found. Each of these operations has its performance indicators as explained in the subsequent explanation.

3.1.1 The Ship Operation

This operation involves the following activities: preparing cargo in the hold and hooking on the cargo, lifting the cargo to the quay, landing the cargo and unhooking and returning the hook to the hold to take a new cargo lift. Performance indicators for this kind of operation are:

- *Gang output*: This indcates the amount of tonnes the gang can handle in one hour.

- *Ship working output*: It indicates how many tonnes the whole ship is handling in one hour.
- *Shift output*: It indicates the weight transferred during one shift.

Ship working output and shift output can be also expressed in output per day, per week, per month or per year. The output determines the length of time a ship can stay at the port from its arrival up to its departure. This legth of time is known as ship turn-round time. Ship turn-round time is another performance indicator of ship operation. To ship owners and shippers, time is very important. Ship owners would like to have time in port for their ships to be as short as possible. Likewise, shippers would like the ship operation to be as quick as possible so that, they can get their cargo quickly. In case the operation is slow, they may look for a port with quicker ship operations. The main factors that can affect the output are: the ship design, size and equipment, type of cargo, weight, packaging and stowage, the number of men in a gang and their skills, equipment and the management i,e. planning and control.

3.1.2 The Quay Transfer Operation

This operation links shipboard activities with the port's storage areas. It is the task concerned with moving cargo to either storage areas from the quay or from the quay to onland means of transport. Performance indicators for this operation are:

- *Moves per hour*: This indicates the number of cycles (from the ship to the quay and back to the ship) a hook can perform per hour.
- *TEUs per ho*This performance indicator shows the number of containers a hook can shift from the ship to the quay in one hour.

Performance of this operation is affected by number of equipment in a gang, the weight they can carry, their speed, distance travelled and the number of men in a gang. This operation affects ship turn-round too. The more the moves/TEUs per hour, the shorter the time a ship will stay in port.

The ship operation and quay transfer operation performance indicators are also known as productivity indicators.

3.1.3 The Storage Operation

As the word storage implies, this operation deals with keeping goods in storage facilities and taking care of them. There are two types of port storage including transit and long term storages. Long term storage ranges between 2-3 years while short term storage for transit is supposed to range between 2-4 weeks (Horck, J. 2000). Some of the reasons for keeping cargo in transit storage are to accommodate for the imbalance between the quantity of cargo carried by the ship and the number of overland transport carrying units ready for inland transport and to allow for administrative formalities to be done. Another reason is to permit for cargo consolidation. These reasons and others may lead to cargo staying in the transit storage for more days than the preferred number of days if, they are not done in good time. The period of time cargo stays in the transit storage is known as cargo dwell time. Cargo dwell time is another measure of the level of customer service in ports. The recommended cargo dwell time is 3 to 4 days (Horck, J. 2000).

3.1.4 The Receipt/ Delivery Operation

Receipt and delivery of cargo can either be direct or indirect. Indirect receipt and delivery of cargo refers to receipt and delivery via a transit storage. Direct receipt and delivery of cargo takes place on the quayside, under the hook. This delivery alternative is affected by actions of individuals and organisations which are outside the control of the port. These actions include onland tranport, customs and others administrative procedures. These factors affect cargo dwell time too, if they are not properly planned and if they are not done within a short time, cargo dwell time will be longer than the desired time.

All the mentioned indicators are used for measuring the quality of service. The quality of service means, suitability of a port and adequacy of its services to meet customers needs. It is related to satisfaction of customers' needs. In this chapter, the performance of Dar-Es-Salaam port as far as the quality of service is concerned is presented and analysed by using the indicators which include: TEUs per hour, tonnes handled per shift per hour, tonnes handled per ship per day, ship turn-round time and cargo dwell time. Cargo security and customer service are also discussed.

3.2 Performance Analysis

3.2.1 Productivity

It refers to the units of cargo handled per equipment, per gang shift and per ship during a given unit period of time. Productivity at the port of DSM is shown in Table 7. In 1991 and 1998, productivity in terms of TEUs was 9 TEUs per hour. In 1996 and 1997, it was 12 TEUs per hour, it was the highest performance. The average productivity per shift per hour is 11 TEUs. The objective of THA is to handle 20 TEUs per hour. The international standard is 25 TEUs per hour. Comparing the ports performance with these, it can be seen that, the ports performance is very low. It is half of the desired performance and lower than half of the international standard.

Table 7. Productivity at Dar-Es-Salaam Port and Mombasa Port

Year	Dar-Es-Salaam Port			Mombasa Port		
	TEUs/Gang/ Hr	Tons/Gang/ Shift	Tons/Ship/ Day	TEUs/Gang/ Hr	Tons/Gang/ Shift	Tons/Ship/ Day
1991	9.3	170.9	1.187.7	N/A	203	1.626
1992	9.0	195.8	1.225.7	N/A	213	1.542
1993	10.3	219.0	1.271.6	N/A	221	1.775
1994	10.8	204.9	1.210.2	N/A	230	1.703
1995	11.0	183.8	1.130.7	N/A	253	1.354
1996	12.0	215.5	1.198.9	N/A	257	1.795
1997	12.0	202.1	1.190.8	N/A	247	1.807
1998	9.4	210.0	1.195.0	5	250	1.614
Average	10.5	200.3	1.201.4	N/A	234.3	1.652

Sources: DSM Port Statistics. KPA 1994 and 1998 Annual Bulletins.

The port's productivity has also been compared with that of Mombasa, Durban and some other ports in the world, Table 8 shows the comparison. Looking at this Table, it can be seen that, in 1998, the port's productivity in terms of TEUs per hour was almost twice that of Mombasa port which is 5 TEUs per hour (East African, 29/5/00) and, much below that of Durban port, that is, 14 TEUs per hour (Fairplay, 6/4/2000). It is less than half of the performance of the other ports. Performance in terms of tons per gang per shift and per ship day, Mombasa port has a higher productivity than DSM port. It was 250 tons per gang per shift in 1998 and the average is 234.4 tons while, at DSM port it was 210 tons per gang per shift in 1998 and the average is 200.3 tons. The performance of DSM port in terms of tons per ship per day is 1201.4 tons on average and it was 1198.9 tons in 1998. At Mombasa port, it is 1652 tons per day on average and it was 1614 tons in 1998. In some ports in developed countries, productivity per ship per day is as follows: In Rotterdam port, it is 140.000 tons/day (with 2x85 gantry cranes), at Amazonehaven, it is 50.000 tons/day (with 1 loader at 5000 tons/hour). Productivity in Amsterdam port, is 65,000 tons/day and at Zealand Seaports, it is 60.000 tons/day (with 4x25 tons floating cranes) (Reji, 2000). The international standard of productivity is 640 tons per shift per hour. Comparing productivity at Dar-Es-Salaam port with productivity at these ports and with the

Table 8. Comparison of Productivity at DSM port and that of other Ports

Ports	Containers/crane/hr.	Tons/gang/shift	Tons/ship/day
Dar-Es-Salaam	9	210	1.198.9
Durban	14		
Mombasa	5	250	1.614.0
Århus	35		
Malmö	25	150	1.222.3
Malta Free Port	18		
Hamburg	20		
Rotterdam	25		140.000.0

Sources: DSM Port Statistcs, Fairplay, 6/4/00, East Africa, 29/5/00, Lecture notes (for Århus, Malmo, Malta Free Port , Rotterdam and Hamburg).

international standard, productivity at the port is very low. It is also lower than that, at Mombasa port.

Some of the reasons for poor productivity are:

- Inadequacy of cargo handling equipment
- Power interuptions
- Poor ship stowage
- Dubble utilisation of equipment particularly the RTG and Front Loaders
- Equipment break-down
- Type of ships. Some of the ships calling at the port are old and not made for quick and direct discharge.

3.2.2 Ship Time in Port

Ship time in port includes waiting and service time. The ratio of waiting time to service time is another indicator of the quality of service at a port. The acceptable ratio is 10%. A port with a higher ratio than this, is considered to be of poor quality (Francou, B. 2000).

Table 9. Average Ship time in Port (Days/Ship) at DSM Port

Years	Waiting Time (WT)	Service Time (ST)	Turn-Round Time (TRT)	WT/ST %
1991	0.1	4.9	5.0	2.0
1992	0.3	4.1	4.4	7.3
1993	0.2	4.0	4.2	5.0
1994	0.8	3.9	4.7	20.5
1995	0.5	4.1	4.6	12.2
1996	0.4	3.2	3.6	12.5
1997	0.5	3.5	4.0	14.3
1998	0.4	3.6	4.0	11.1
Average	0.4	3.9	4.3	10.6

Source: DSM Port Performance Statistics

Waiting time at the port of Dar-Es-Salaam as indicated in Table 9 , is 0.4 day (about 10 hours) on average. In 1998, it was also 0.4 of a day. From 1991 to 1993, waiting time to service time ratio was good, it was below the acceptable ratio. From 1994 to 1998, the performance deteriorated, it was above the acceptable ratio. In 1994, it was the highest, it was 20.5%. In 1998, the ratio was 11.1%, it was better than the ratio from 1994 to 1997. On average, the ratio is 10.6%. This ratio is slightly higher than the recommended one. Ship turn-round time at the port ranges from three to five days. In 1998, it was 4 days. On average, the turn-round time is 4.3 days.

The situation at Mombasa port is as shown in Table 10. Waiting time at the port is 2.6 days on average. From 1991 to 1998, the percentage of waiting time to service time is much higher than the acceptable ratio and the ratio at DSM port. The smallest ratio was in 1991 and the highest rate was in 1997, it was 204.3%. On average, it is 89.7%. In 1998, it was 46%.This situation indicates that, there is congestion at the port. In Freight (August/September, 1998), it is said that, ``delays at Mombasa port are encouraging more Ugandan shippers to move to alternative soutern route. This is due to congestion at Mombasa port''. In 1998, turn-round time was 4.3 days.

Table 10. Ship Time in Port at Mombasa Port

Year	Waiting Time	Service Time	Turn-Round-Time	WT/ST %
1991	1.84	3.52	5.36	34.3
1992	2.97	3.4	6.37	87.4
1993	2.88	1.57	4.45	183.4
1994	3.47	2.93	6.4	118.4
1995	2.59	2.01	4.6	128.9
1996	2.45	1.45	3.9	169.0
1997	2.98	1.22	4.2	204.3
1998	1.36	2.94	4.3	46.3
Average	2.6	2.9	4.9	89.7

Source: KPA Annual Reports. 1994 and 1998.

On average, it is 4.9 days. In 1998, waiting time at the port of Durban was 20 hours, ship working time was 31 hours hence, waiting time to service time ratio was 64.5%. Ship turn-round time at the port is 2.1 days (Portia Management Services, 1998). Waiting time ratio is not good, waiting time is too long in relation to working time. Waiting time is shorter at DSM port than the port of Durban. However, total Ship time in port is shorter at Durban than at DSM port.

Causes of waiting time with their average percentages in blakets as obtained from DSM port statistics include the following :

- Weather -rainfall and wind (16%)
- Waiting for shore handling equipment (7.7%)
- Waiting for cargo (12%)
- Machine break-downs (6.7%)
- Waiting for lorries and wagons (11%)
- Openning/closing hatches (3.9%)
- Ship not at berth (6%)
- Electrical power failures (2.7%)
- A Master failing to complete ship papers prior to berthing of a ship (3.6%)
- Waiting for labour shift (2.8%)
- Early finish (8.4%)
- Miscelleneous (19%)

3. 2.3 Container Dwell Time

Container dwell time refers to time spent in port by a container from its arrival to its departure. Container dwell time for imports, exports and empties at the port of Dar-Es-Salaam is shown in Table 11.

3.2.3.1 Analysis of Container Dwell Time

Dwell time for imports is 29 days on average. In 1998, it was 31 days. It was more than the dwell time from 1991 to 1994. The recommended dwell time is 3 to

Table 11. Container Dwell Time (Days per container)

Years	1991	1992	1993	1994	1995	1996	1997	1998	Average
Imports	23.0	19.0	20.0	29.0	42.0	34.0	34.0	31.0	29.0
Exports	2.0	3.0	3.0	4.0	3.0	4.0	6.0	8.0	4.0
Empties	7.0	14.0	16.5	14.0	32.0	22.0	8.0	9.0	14.4

Source: DSM Port Statistics

4 days (Horck, J. 2000). The desired dwell time at the port is 7 days at most. At Durban port, dwell time for imports is 4 days (Portia Management Services, 1998) and in the port of Hamburg, it is 4 days (Bluert, C. 2000) too. Comparing the container dwell time at the port with the desired dwell time by the port and with that of the two ports, it can be clearly seen that, the container dwell time at the port is extremely long, it is about ten times the recommended time and that of the two ports. It is more than four times of the desired dwell time. At the port of Mombasa, the average dwell time for imports is 15 days (East Africa, 20/5/2000). This dwell time is about half of that, at Dar-Es-Salaam port.

3.2.3.2 Causes of Long Container Dwell Time

Some of the prominent causes of long cargo dwell time at the port are mentioned and explained under the subsquent explanation.

3.2.3.2.1 Cargo Documents Clearance

It is a requirement for anybody who clears cargo from the port to have proper official cargo documents. The documents enable him or her to clear his/her goods from the port. The procedure for clearing cargo is as follows: Prior to delivery of a container, the importer or his clearing agent is supposed to make sure that, the details on delivery documents are identical to those appearing on the terminal container records. On presentation of the documents, container records are consulted and their positions in the yard are identified.

In Tanzania, for proper collection of revenue, import control, state security as well as for security of cargo itself, a consignee has to be cleared by customs, ship agents and

port officials. A consignee is regarded to have a clear document when, his/her documents contain the information of cargo as per the records received by the port and which, is cleared by all the concerned officials. In most cases, it takes a long time to clear documents by consignees or their agents. Reasons for delays in getting clear documents are as follows:

1. Different locations for officials who are responsible for clearing the documents

As stated earlier, documents for cargo have to be examined by custom authorities, ship agents and port authorities. These authorities are situated far away from each other. A consignee or his/her agent has to move from one place to another where the officials' offices are located. Besides this, he/she or the agent faces a number of bureaucratic problems which hinder a smooth and quick cargo documents clearance process. Due to this, delay in getting clear cargo documents occurs.

2. Poor means of communication

In case one of the documents required for clearing cargo is missing, or in case there is an error in one of the documents after the consignee has handed them to a particular official, the document will be left unattended until the consignee or his agent physically meet the concerned official. Even in cases where the consignee or his agent has telephone, most of the officials do not bother to contact them instead, they will keep the documents aside till when the consignee or his/her agent appears physically. This means that, the clearance process will stop for a while, it will continue again when the consignee or his/her agent appears. This, attributes to delays in the cargo clearance process.

3. Little time allocated for cargo documents clearance documentation

Official hours for receiving and processing documents are from 08:00 to 15:00 hours excluding Saturdays, Sundays and holidays (SSHEX). However, due to security of money which is received from different kinds of payments at the port, cash offices close at 13:00 hour for safe handling of cash to the bank.

4. Long time for customs verification

Cargo clearance documents are released by the customs authority after conducting a physical verification. On average, a 100% verification takes 2 hours for one twenty feet equivalent unit (TEU). Time for verification may be longer or less depending on the nature of container contents, number of staff doing the verification, parties to be involved, verification area and unpredictable situations such as rain.

The customs clearance procedure is long and cumbersome, this is why it causes delays in cargo clearance The Chairman of the Tanzania Freight Forwarders Association (TAFFA) complained that, cumbersome documentation and customs cargo clearance procedure is one of the causes of long cargo dwell time (East Africa, 18/Nov/1998).

3.2.3.2.2 Long Container Delivery Procedure

After completing the cargo clearing procedure, the consignee or his/her clearing agent obtains a delivery order which he/she presents to the port officials. At a container terminal, the procedure for clearing a container is as follows:

i. The consignee/clearing agent presents a copy of declaration and disposal order to the delivery office.
ii. After a certain time, a stop list is prepared and posted to the computer room, thereafter, it is sent to a yard supervisor for identification of the container position in the yard.
iii. After the identification of the position of the container in the yard, the list is posted to the yard supervisor who gives the consignee or his/her agent a loading permit.
iv. From the yard supervisor, the consignee or the clearing agent proceeds to the security office for counter checking.

v. Thereafter, the consignee or the clearing agent with the overland transporter present the loading permit to the RTG clerk who directs the haulier to pack his vehicle or put his wagon at a particular position ready for loading.

vi. After loading, the haulier moves the container to the check point gate for inspection whereby, a gate pass and interchange report is issued.

vii. Finally, the container moves to the security gate and exit.

With such a long process which require consignees to move from here and there within the port, and having in mind that, there are a number of consignees or clearing agents who go through the process at the same time, delays are bound to happen.

3.2.3.2.3 Other Reasons

1. Financial constraints: Sometimes, consignees collect their cargo late because, of lack of funds for paying customs charges/import duties and for paying THA port charges. This in most cases happens when there is sudden increase in tariff, resulting in unplanned expenses by consignees.
2. Late receipt of Bills of Lading by consignees.
3. Consignees not being aware of the arrival of their cargo at the port: This is caused by the inefficiency of the National Shipping Agency (NASACO), the then sole Shipping agency. This argument can be supported by the complaint expressed by TAFFA about NASACO. TAFFA attributed NASACO as one of the causes of long cargo dwell time. The Chairman of the association said, the inefficieny of NASACO is a cause of delay in cargo removal. He complained that, some of its members have lost potential customers to Durban in South Africa. Some principles have moved from Tanzania ports to other ports. The port has because of this, lost a substantial cargo throughput and revenues (East Africa,18th Nov,1998).
4. Consignees waiting for partial tax exemption from the Ministry of Treasury. This is common for Government Institutions. Sometimes, it takes a long time to get the exemption.

5. Lack of knowledge in documentation procedure by consignees who are not using clearing agents. It takes a long time for them to complete the clearance process.
6. Consignees waiting for acceptance or otherwise of their requests for waiver of storage charges.
7. Failure to secure wagons in time by consignees especially TRC wagons.
8. Lack of inland transport due to closure of some sections of the railway lines particularly TRC railway lines and some parts of roads undergoing repairs. This usually happens when there are heavy rainfalls, especially in the northern part of Tanzania. TRC data reveals that, on average, from 1994 to 1998, there are 1538 hours and 1305 hours of railway closure per year due to accidents and floods respectively (TRC 1994 to 1998 Annual Reports).
9. Consignees keeping their cargo at the port while looking for buyers. This is a consequence of lower charges at the port than outside storages.

3.3 Security of Cargo

Security of cargo at the port of Dar-Es-Salaam is not good. The Principal Statistician of the port said that, the port has problems with security of cargo howver, no proper records are kept about losses and damages (personal communication, 8/12/1999). There are a number of cases of pilferage, losses and damages. Processing of claims is also poorly handled (THA Corporate Strategic Plan 1996/97-2000/01). For example, from January to June 1998, claims put forward for payment approval every moth amounted to 236,519,866.8 TShs (about 394.199.78 USD) on avearge. Claims sent to finance department for payment settlement amounts to an average of 14,685,418.4 Tshs (about 24.475.7 USD). Claims awaiting responses from operations department amount to an average of 199,269,853.3 Tshs (about 332.116.42 USD) and claims on hand still under investigation are 434,920,046.7 Tshs (about 724.866.7 USD) on average (see Appendix B).

Comparing the quality of service at DSM port with the quality of service at Mombasa port, the situation is more or less the same. In Freight (Aug/Sept,1998), it is said that, Uganda Minister for trade and Industry has called for faster documentation and its own country section at the port to protect its cargo from pilferage. Uganda demand to have its own security due to poor security of cargo at the port. From Appendix C, it can be seen that, in 1998, claims arising from missing cargo which, was brought forward from 1997 amounted to 35,105,373.85 KShs (about 583.508.96 USD). Claims lodged during the year amounted to 99,274,479.64 KShs (about 1.650.457.47 USD). At the port of Durban, the quality of service regarding security of cargo is better than at DSM port. In the THA Corporate strategy (1996/97-2000/01) it is said that, DSM port ranks low in security of cargo and processing of claims when compared to competing ports in the south of Africa.

3.4 **Customer Service**

Customer service is a customer oriented philosophy which, intergrates and manages all elements of the customer interface. Good customer service is the output of customer satsfaction (Gray, R. 2000).

Dar-Es-Salaam port used to have captive customers that is, customers who had no alternative ports from countries in the south of Africa, during civil wars in Mozambique and apartheid regime in South Africa. As a result of this, the port as well as the port community developed a tendency to see themselves as Kings of their businesses instead of their customers. They were treating their customers according to their wishes and not according to customers' wants. This kind of attitude is still there after the end of civil wars in Mozambique and apartheid regime in South Africa which, have led to ports in these countries especially the port of Durban to compete with DSM port. Poor quality of customer service is onother aspects of quality of

service which, DSM port ranks low as compared to South African ports (THA Corporate Strategy, 1996/97-2000/2001).

3.5 Summary

The quality of service is related to the level of satisfaction of the customer. The quality of service at Dar-Es-Salaam port is poor. However, the performance of the port in terms of TEUs/hour, waiting time to service time ratio and ship turn-round time, is better than that of Mombasa port. The performance of the port in terms of tons/gang per shift, tons per ship per day and in terms of dwell time, is poor than that of Mombasa port. The quality of service in terms of cargo security at the two ports, is more or less the same. The port of Durban is far better in every aspect of quality of service than the port of DSM. This being the case, DSM port can not lose cargo to Mombasa port because, of its poor quality of service. The port of DSM can lose cargo to the port of Durban.

CHAPTER FOUR

THE HINTERLAND OF DAR-ES-SALAAM PORT AND ITS ABILITY TO GENERATE DRY CARGO FOR SEA BORNE TRADE

4.1 Introduction

The literal meaning of hinterland's ability to generate dry cargo is, the physical capability of the hinterland to produce dry cargo. In this context, it means both ability to produce dry cargo for export as well as the capability to buy dry cargo for imports. The exports and imports concerned are those which, are transported by ships.

A particular hinterland's ability to generate dry cargo may increase or remain constant but, its volume of cargo through a particular port which has competitors may decline because, the port's competitors are able to attract more cargo from the hinterland. When the hinterland's ability to generate cargo grows, the total volume of cargo through the competing ports increases and vice-versa. When the hinterland's ability to generate cargo is declining, cargo through the more competitive ports may not decline, it will decline at the less competitive port (s). In case the competing ports are more or less equally competitive, cargo through each of the ports may decline.

In this chapter, investigation has been done to identify a country or countries among the countries served by DSM port which, is/are causing a decline in dry cargo through the port. Investigation and analysis has also been done to find out whether, a particular country's or countries' ability to generate dry cargo is not declining but, Dar-Es-Salaam port is losing cargo to its competitors. Dry cargo growth rates from each of

the Great Lakes countries through DSM port and Mombasa port, the ports which are sharing this hinterland, have been compared and, the share of the cargo through DSM port has been analysed. For the hinterland which is shared by DSM port and Durban port that is, Zambia and Malawi, investigation has been done by analysing the trends of dry cargo to/from the countries through DSM port. This is because of lack of data on dry cargo to/from each of these countries through the port of Durban. Causes for declining ability to generate dry cargo by the hinterland or part of it are investigated. Before the analysis is done, DSM port's hinterland and the port's competitors are explained. Comparison of trends of the volume of dry cargo through DSM port, Mombasa port and the port of Durban is made. This comparison has been done in order to see, how the other ports are fairing in comparison with DSM port.

4.2 Dar-Es-Salaam Port's Hinterland

As earlier stated, the hinterland of DSM port include Tanzania as well as landlocked countries which are Burundi, The Democratic Republic of Congo, Rwanda, Uganda, Zambia and Malawi . The share of dry cargo via DSM port to and from each of these countries is indicated in Table 12 and Figure 2. Figure 3 shows the port's hinterland.

Table 12. Percentage Share of Dry Cargo each Country Served by DSM Port

Years	Tanzania	Zambia	Burundi	Congo	Rwanda	Malawi	Uganda
1991	43.2	29.0	7.6	7.7	2.5	7.5	2.3
1992	41.2	40.1	5.3	4.0	2.0	5.9	0.7
1993	47.7	27.1	6.6	5.6	6.5	5.8	0.7
1994	50.7	25.4	12.0	3.5	4.8	1.5	2.1
1995	57.3	20.3	8.2	6.0	5.0	0.6	2.8
1996	57.4	17.9	4.0	9.2	6.2	0.8	4.3
1997	67.6	15.0	1.8	4.7	5.9	0.5	4.5
1998	69.6	13.0	2.2	3.5	3.3	0.3	2.8
Average	54.3	23.5	6.4	5.5	4.5	2.9	2.5

Source: Author's Calculations {volume of dry cargo from a particular country (see Table 19) divided by, the total dry cargo throughput (see Table 1), multiply by 100}.

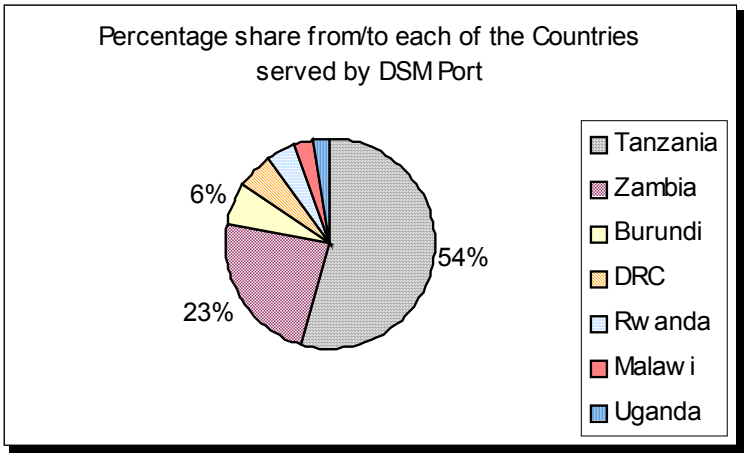


Figure 2

From Table 12 and Figure 2, it can be noted that, the major users of the port are Tanzanian exporters and importers. On average, Tanzania cargo accounts for 54% while, dry cargo from /to the six countries account for 45.07%. The share of Tanzania cargo has been increasing from 43.2% in 1991 to 69.6% in 1998. The second main user of the port is Zambia. Its dry cargo accounts for 23.5% on average from 1991 to 1998. Looking at the trend, this share has been declining. The largest share was in 1992, it was 40.1%. In 1998, it was 13%. The third largest user of the port is Burundi. Its average share is 6.4%. This country's cargo share is also declining. The largest share was in 1994, it was 12.0%. From 1995, the share has been declining, in 1998 it was 2.2%. Burundi is followed by the Democratic Republic of Congo then, Rwanda comes after DRC. Malawi ranks fifth and the last one is Uganda. The shares of these countries except Uganda have been declining. The share of the Republic of Congo was 9.2% in 1996 and it was 3.5% in 1998. The share of Malawi cargo was 7.5% in 1991, it was 0.3% in 1998. Looking at the shares on yearly basis, Malawi has been the least user of the port since 1994. The share of Ugandan dry cargo in the total dry cargo through Dar-Es-Salaam port was 2.3% in 1991, while in 1998, it was 2.8%. However, from 1994 to 1997, it had been increasing. The largest share was in 1997, it was 4.5%.

Users of a port may be captive users or not. Captive users are those users who do not have alternative means, they have to use the port whether they like it or not. Port

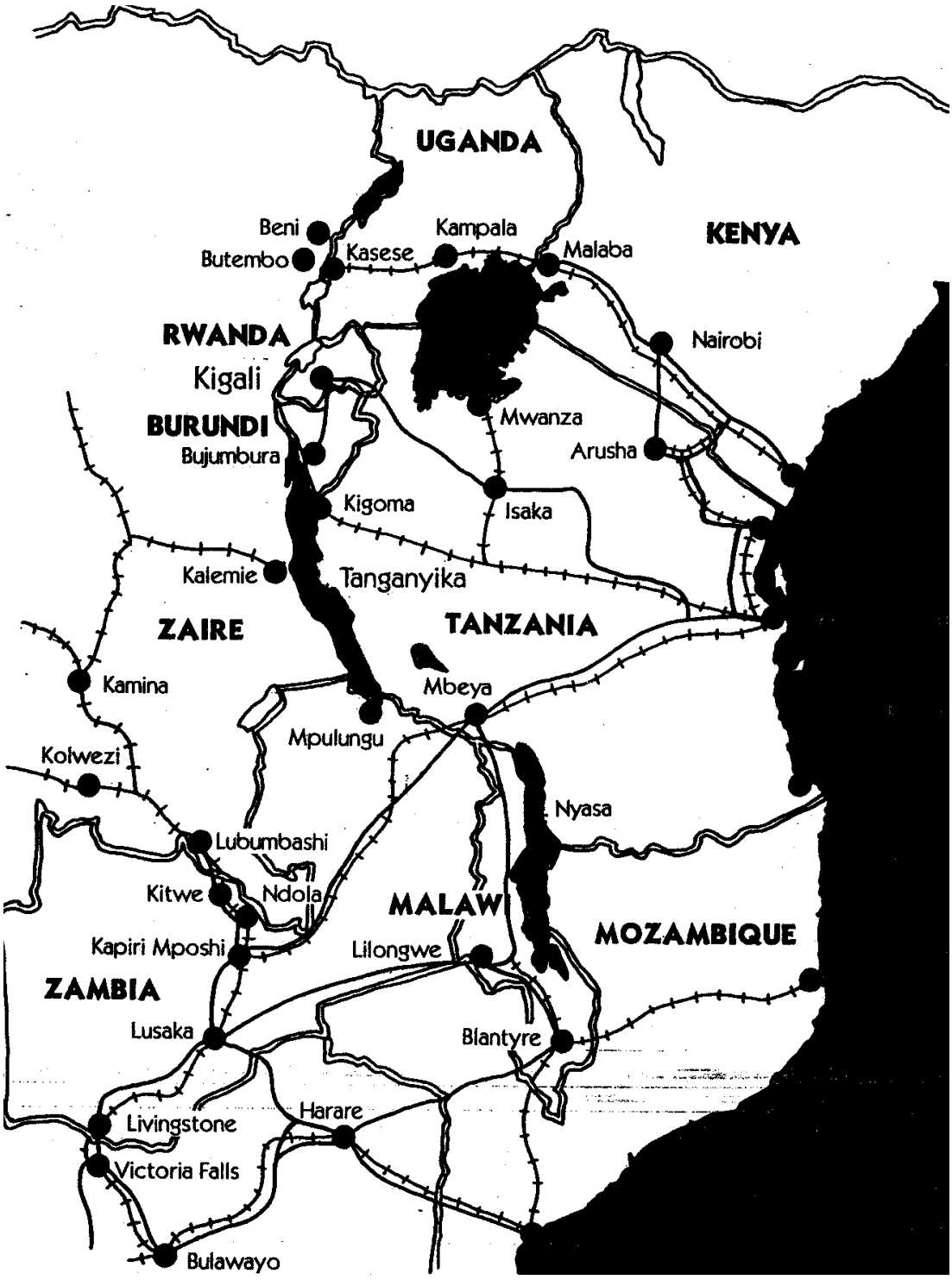


Figure 3 THE HINTERLAND OF DAR-ES-SALAAM PORT

(Excluding Kenya and Mozambique)

customers who are not captives have alternative ports which they can use. They can shift from one port to another, looking for a port which can satisfy better, most of their requirements. As far as the port of DSM is concerned, its captive customers are most of the importers and exporters from Tanzania. Non captive customers are those from landlocked countries. The landlocked countries can be served by other ports found in the south and in the east African regions. The alternative ports, means of transport and routes to these countries are explained in the following part.

4.3 Alternative Ports and Inland Transport to Landlocked Countries

The alternative ports are grouped into East African Region and South African Region.

4.3.1 Ports in the East African Region

There are two major ports in the East African Region, Dar-Es-Salaam and Mombasa. These two ports are competitors for cargo from/to the Great Lakes Countries. The altrnative routes and means of transport from these ports to the countries are shown in Tables 13 and 14.

4.3.1.1 The Port of Dar-Es-Salaam

It can be noted from Table 13 that, there are two railway corporations, the Tanzania-Zambia Railways Corporation (TAZARA) and the Tanzania Railways Corporation (TRC) providing transport services to the countries. There is road transport and inland water transport too. The state of transport from the port to its hinterland is not satisfactory particularly, transport by TRC which operates in the northern part of Tanzania. TRC railway lines are affected by frequent accidents and floods during rain season. From 1994 to 1997, there were an average of 15.382 hours and 1.305.5 hours of line closures per year due to accidents and floods respectively (TRC Annual Reports). Some parts of the roads in the north are not easily passable during rain seasons (Daily News.25/5/1998). Both railway lines (TAZARA) and roads in the

Table 13. DSM Port and Overland Transport Routes to Landlocked Countries

Destination	Route and Modes of Transport
Zambia	TAZARA Railway TanZam Highway TAZAMA Pipeline
DRC	TAZARA Railway via Zambia TAZARA Railway, road to Mpulungu and Lake to DRC TanZam Highway via Zambia Railway TRC Railway to Kigoma via Lake to DRC Road to Southern DRC via Zambia and via Burundi to Eastern DRC
Malawi	TAZARA Railway to Mbeya, road to Malawi/road toMalaw
Burundi	TRC Railway to Kigoma via Lake to Burundi TRC Railway to Isaka, road to Burundi Road to Burundi
Rwanda	TRC Railway to Kigoma, Lake or road to Rwanda Road to Rwanda
Uganda	TRC Railway to Mwanza, Lake to Uganda Road to Uganda

Source: THA/TAZARA/TRC/SATCC

southern part that is, transport connecting DSM port with Zambia and Malawi are good. Besides the transport infrastructure, both TRC and TAZARA do not have sufficient wagons (East Africa. 3/3/2000).

4.3.1.2 The Port of Mombasa

Mombasa port is in Kenya, in the northern part of Tanzania. It is the only port which competes with the port of Dar-Es-Salaam in the north. It has a natural harbour with total berth length of 3044 m. The port has a total of 16 berths with transit shed space of 106,281m^2. Three berths with a total legth of 596 metres are devoted for container ships. It has a capacity to handle 250,000 TEUs per year. The container terminal has 4 ships to shore gantry cranes, 40 shore gantry cranes, 11 rubber tyre gantry cranes and 2 rail mounted cranes. General cargo berths comprise of 13 berths with quay length of 2448 m. It is equiped with portal cranes, mobile cranes, forklift trucks and overhead conveyor for bulk soda ash. In 1998, 960 dry cargo deep sea vessels called at the port. Its major routes to landlocked countries are shown in the Table 14 and Figure 4.

Table 14. Mombasa Port and Inland Transport Routes to Landlocked Countries

Destination	Route and Modes of Transport
Burundi	Road via Uganda and Rwanda
Rwanda	Road via Uganda Road via Tanzania
DRC (Zaire)	Road via Uganda, Rwanda and Burundi Road/Lake via Tanzania Road via Tanzania and Burundi or Rwanda
Uganda	Road KRC Railway

Source: KPA/KRC (Kenya Railways Corporation)

The port is connected to Congo by roads and railway via either Tanzania or Uganda and via either Burundi or Rwanda. It is connected to Burundi and Rwanda by roads and railways via either Uganda or Tanzania. It is directly connected to Uganda by roads and Kenya railways. The state of transport infrastructure connecting Mombasa and its hinterland is not good in some parts. In Freight (Aug./Sept., 1998), it is said that, `more Uganda shippers move to alternative southern route due to poor state of Mombasa – Nairobi Highway. However, most of the roads are better than the roads connecting DSM port and the Great Lakes region (Freight, Dec/Jan,1998).

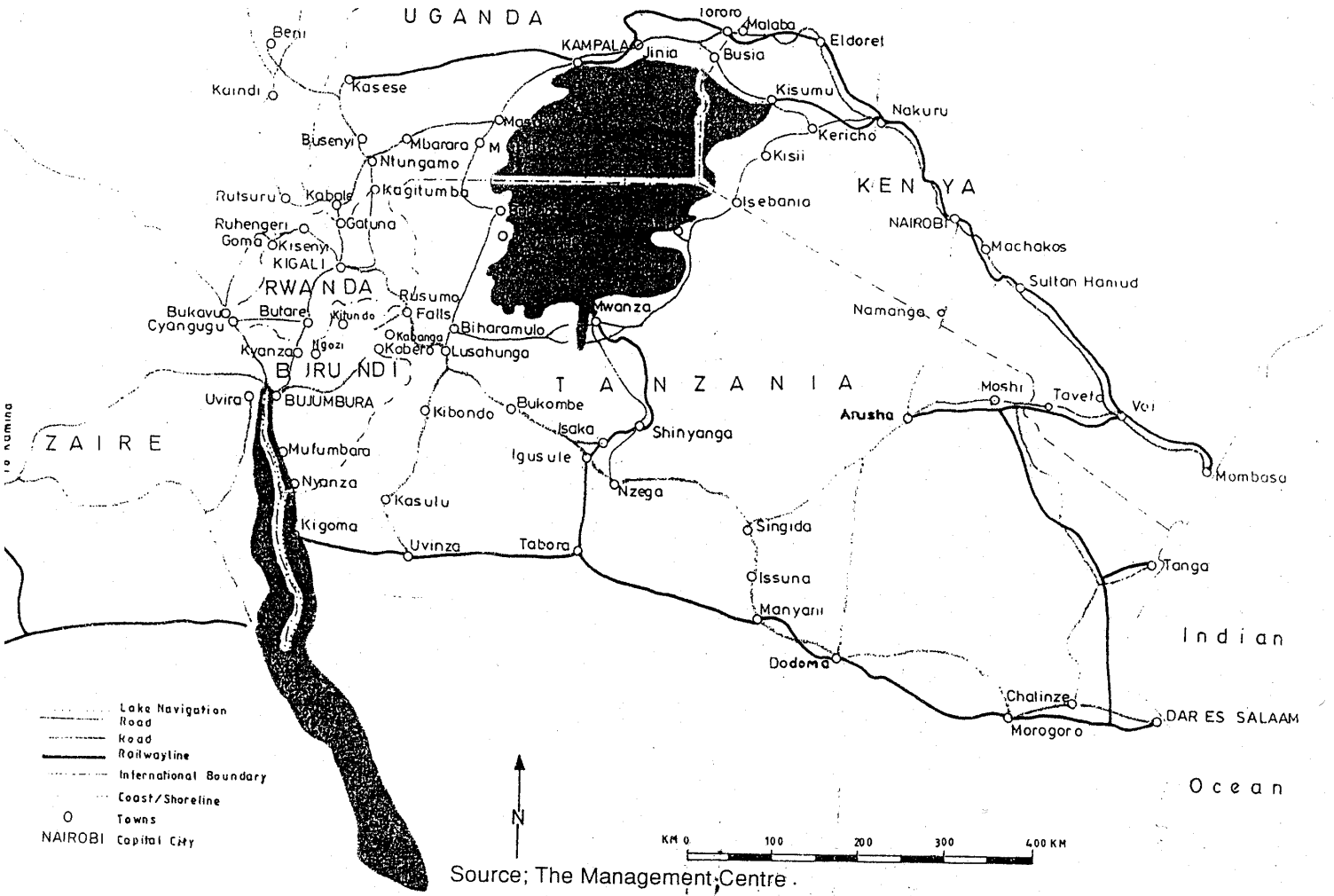
4.3.2 Ports in the Southern Africa Region

Under this part, ports in the southern Africa and their overland transport connections to landlocked countries are mentioned. Explanation on the port of Durban which is DSM port's main competitor in the southern region is provided.

4.3.2.1 Ports in the Southern Region and Overland Transport Connections to Landlocked Countries

Ports in the southern region and their inland transport connections to landlocked countries are shown in Table 15 and Figure 5.

Figure 4



Source; The Management Centre .

Figure 2.4 **Railways, roads and water ways connecting the ports of Dar-es-Salaam and Mombasa to Landlocked countries**

Table 15. Ports in the Southern Africa and Inland Transport Routes to Landlocked Countries

Destinations	Routes and modes of Transport
Nacala to Malawi and Zambia	Railway to Zambia Road to Blantyre, Lilongwe and Zambia
Beira to Malawi and Zambia	Railway to Blantyre and Lilongwe Railway to Blantyre, Lilongwe and Zambia Railway to Zambia
Maputo to Zambia, Malawi and DRC	Railways to Zambia Road to Zambia, Malawi and DRC
Durban to Zambia and Malawi Durban to Great Lakes Countries Durban to Uganda	Railways via Zimbabwe to Zambia and Malawi Railway via Zimbabwe, Zambia and Tanzania* Railway via Zimbabwe, Zambia and Tanzania*
Cape Town to Zambia and DRC	Railways to Zambia and DRC Road to Zambia and DRC
Walvis Bay to Zambia and DRC	Railway to Zambia and DRC Road to Zambia and DRC

Source: South African Ports/Hoff & Overgaard a/s SATCC. 1996.

Note: *These are planned routes (Freight, Aug/Sept, 1998).

In the southern part of Africa as well as southern part of Tanzania, there are a number of ports which can serve the landlocked countries which are served by the port of Dar-Es-Salaam. Currently, only Malawi and Zambia are served by some of these ports. These ports include: Nacala, Maputo and Beira in Mozambique, Walvis Bay in Namibia, Lobito in Angola and South Africa ports. The ports in South Africa are Richards Bay, Durban, Port Elizabeth, East London, Mossel Bay, Cape Town and Saldanha Bay.

4.3.2.2 The Port of Durban

The port of Durban is situated in the east coast of South Africa. It is the major port in South Africa. It is the country's main general cargo and container port. It handles

65% on avarage of the Country's entire traffic. It handles most of the transhipment

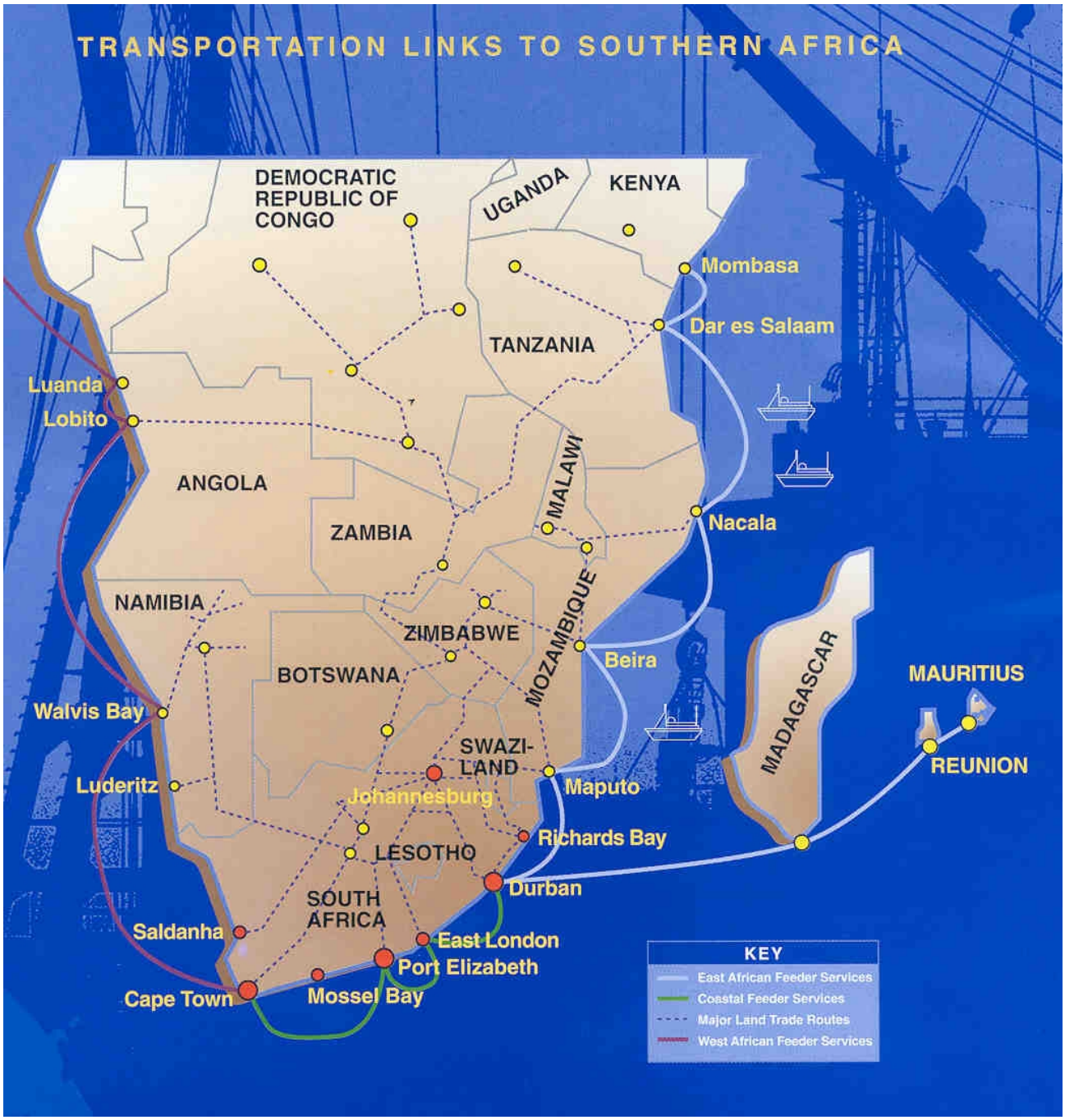


Figure 5

cargo passing through South African ports. In 1998, it transhiped 2.387.566 tons of dry cargo which are equivalent to 78% of total transhiped dry cargo through South Africa ports. It is geographically located at the convergence of the world's major shipping routes hence, it serves a number of domestic and international markets. Its container traffic has been increasing at a rate of 8% per year. Its entrance channel is 12.8 m depth and 122 m width.

The port covers a total of 1.854 hectares and the total distance around it is 21 kilometres. It has 57 berths, eight berths are for container terminal. It offers users operational advantage which include frequency of shipments (in 1998, about 2700 dry cargo deep sea vessels called at the port), destinations served and good intermodal link connecting the rest of Africa (see Figure 5) . Freight to the port and port charges are cheaper due to economies of scale (Kinunda. Communication. 14/12/2000. Also see Appendix E). It has 12 railway bound gantry cranes, fork-lift trucks ranging from 2.5 to 42 tons safe working load (SWL) for general cargo handling. Other equipment are 7 reach stackers equiped with 6/12 metres telescopic container spreaders, 60 tractors and varied trailers for horizontal transport of cargo, fourteen R 11.5 metres multi-purpose mobile Godzilla cranes capable of lifting 100 tons of cargo, special attachments that provide a 48.5 m reach, and it has a control tower from which operations are controlled (The Port of Durban Handbook and Directory, 1999/2000).

4.4 Comparison of Dry Cargo through DSM Port, Mombasa Port and the Port of Durban

Table 16 and Figure 6 show that, the trend of the volume of dry cargo throughput at Mombasa port and Durban port is better than, at DSM port.

Table 16. Dry Cargo through DSM, Mombasa and Durban Ports

Years	DSM	Trend %	Mombasa	Trend %	Durban	Trend %
1991	1.894		3.187		23.800	
1992	2.345	23.8	3.962	24.3	27.000	13.5
1993	2.452	4.6	4.115	3.9	25.400	-6.0
1994	2.071	-15.6	12.524	45.0	25.000	-1.6
1995	2.084	0.7	4.355	-27.0	26.250	5.0
1996	1.665	-20.1	4.908	12.7	31.500	20.0
1997	1.836	10.2	6.163	25.6	30.200	-4.0
1998	1.819	-0.9	5.720	-7.2	30.840	2.0
Aveage		0.34		9.7		3.6

Source: DSM Port Statistics, KPA Annual Reports (1994 &1998) and Durban Handbook and Directory. 199972000 (extracted from Bar chart).

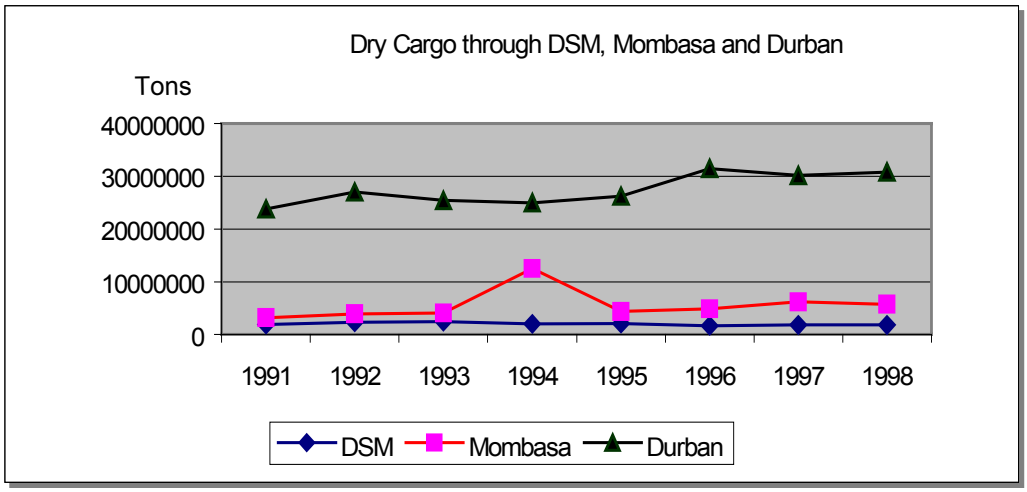


Figure 6.

The average growth rate at Mombasa port is 9.7%, at the port of Durban it is 3.65% while at DSM port, it is 0.34%. In 1998, the volume of cargo at Mombasa port was 79% higher than the volume in 1991, at the port of Durban, it was 33% higher while, at DSM port, it was 3.9% less the throughput in 1991. This indicates that, the other two ports are able to attract more customers than, DSM port.

4.5 Generation of Dry Cargo by Each Country Served by DSM Port

The share of traffic belonging to each country at a particular port as shown in Table 13, may increase or decrease, depending on its rate of traffic growth in relation to the rate of growth of traffic belonging to other countries. Shares do not show the effect of the volume of a particular country's cargo to the total traffic at a particular port.The effect of the volume of traffic from/to each country on the total traffic passing through the port is shown by the rate of traffic growth for each country's cargo. Traffic growth for each country is shown and analysed in the subsequent disccusions. The aim of this analysis is to identify a country or countries which, contribute to the declining dry cargo throughput at the port of Dar-Es-Salaam.

4.5.1 Traffic Generation by Tanzania

Table 17. Exports and Imports from/to Tanzania Through DSM Port

Years	Imports	Growth %	Exports %	Growth %	Total	Growth %
1991	563.746		254.717		818.463	
1992	677.715	20.2	289.028	13.5	966.743	18.1
1993	854.789	26.1	314.270	8.7	1.169.059	20.9
1994	795.166	-7.0	25.893	-19.9	1.047.059	-10.4
1995	836.171	5.2	357.152	41.8	1.193.323	14.0
1996	645.768	-22.8	311.148	-12.9	956.916	-20.0
1997	946.606	46.7	2 93.827	-5.6	1.240.433	29.6
1998	950.820	0.5	314.857	7.1	1.265.677	2.0
Average		8.6		4 .1		6.9

Source: DSM Port Performance Statistics

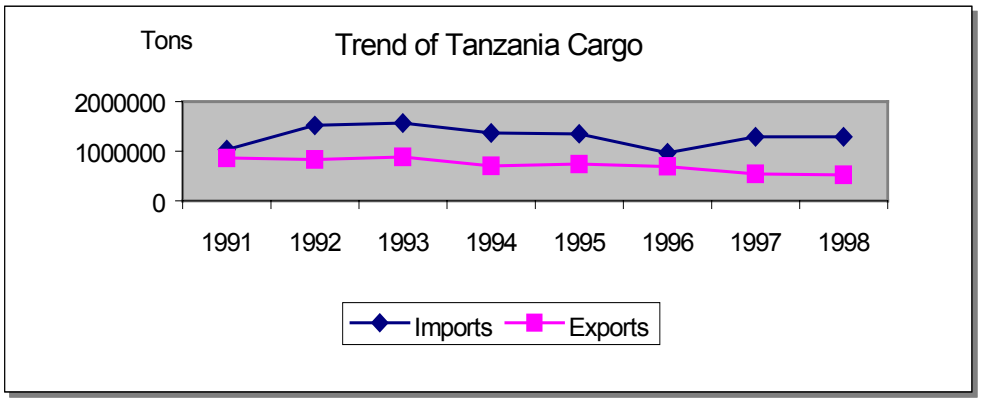


Figure 7.

In 1992 and 1993, the total dry cargo to/from Tanzania through the port of Dar-Es-Salaam increased by 18.1% and 20.9% respectively. In 1994, it decreased by 10.4%. This decrease was attributed by a 19.9% decrease in exports and a 7% decrease in imports. The performance of the overall economy was the cause for this decline. The economic growth in 1992 was 5.7%. In 1993 and 1994, it dropped to 4.2% and 3.0% respectively. In 1994, negative growth rates were recorded in mining (-1.1%) and manufacturing (-3.8%). Growth rates for Agriculture and Industry were low, they were 0.4% and 0.6% respectively (Statistical Abstarct, 1997). In 1995, there was a 41.8% increase in exports, imports increased by 5.2%. These increases attributed to a total increase in dry cargo from/to Tanzania through the port by 14%. In 1996, the volume of dry cargo decreased by 20%. The decrease was a result of a decrease in exports by 12.9% and that of imports by 22.8%. In 1997 and 1998, the volume of dry cargo to/from the country through the port increased.The highest volume was in 1998, it was 1.265.577 metric tonnes. The highest volume of imports was in 1998 too, it was 950.820 metric tonnes. On average, imports have been growing at an average rate of 8.6%. The highest volume of exports was in 1995, it was 357.352 metric tonnes. The average growth rate of exports was 4.1%. On average, the volume of dry cargo to/from Tanzania through DSM port has been growing at a rate of 6.9%.

From this analysis, it can be said that, the declining traffic throughput at Dar-Es-Salaam port is not caused by a decline in cargo from/to Tanzania. It is caused by either each of the landlocked countries it serves or, by some of them.

4.5.2 Dry Cargo Generated by the Great Lakes Countries

The volume of dry generated by the Great lakes countries is shown in Table 18.

Table 18. Traffic Generated by Burundi, Congo, Rwanda and Uganda for Dar- Es-Salaam Port. (in metric tons)

Years	Burundi	Congo	Rwanda	Uganda	Total	%Growth
1991	143.577	146.487	47.051	43.374	380.489	
1992	124.285	94.535	46.144	16.348	218.820	-42.5
1993	162.818	136.211	159.092	17.247	475.368	117.2
1994	249.282	71.429	99.795	44.217	464.723	-2.2
1995	171.834	125.365	103.051	57.506	457.753	-1.5
1996	65.100	153.068	103.618	71.987	393.773	-14.0
1997	32.697	85.746	108.285	83.135	309.863	-21.3
1998	39.649	64.335	60.394	51.687	216.065	-30.3

Source: DSM Port Performance Statistics.

From Table 18 and Figure 8 it can be observed that, the total dry cargo from these countries had been decreasing during the whole period except, in 1993. Between 1991 and 1992, it decreased by 42.5% while between 1992 and 1993, it increased by 117.2%. In 1993, the countries generated the largest volume of the cargo, it amounted to 475.386 tons. In 1994, cargo for Burundi and Uganda increased while, cargo for DRC and Rwanda decreased. In 1998, cargo for all the countries except Burundi decreased. The total volume decreased by 30.3%, it was 43.2% lower than its volume in 1991. During the year, the countries generated the smallest volume of the cargo. They generated 216.065 tons. This decline contributed to the declining dry cargo through the port of Dar-Es-Salaam.

In the following part, analysis of the trend of cargo from/to each of the countries through DSM port and Mombasa port has been done in order to determine whether, cargo is declining at the former port while, it is increasing at the later or not.

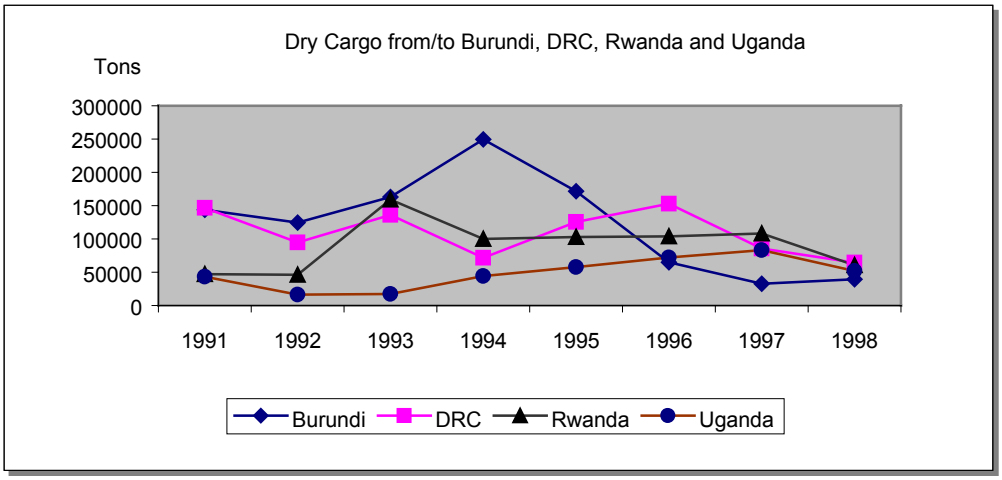


Figure 8.

4.5.2.1 Dry Cargo Generation by Burundi

Dry cargo generated by this country is shown in Table 19.

Table 19. Dry Cargo from/to Burundi through DSM and Mombasa Ports and Share of Cargo through DSM Port (In metric tons)

Years	DSM	Trend %	Mombasa	Trend %	Total	Trend %	Share %
1991	143.577		13.065		156.642		91.7
1992	124.285	-13.4	41.669	53.1	165.954	5.9	75.0
1993	162.818	31.0	21.774	-47.8	184.592	17.8	88.2
1994	249.282	53.1	36.296	66.7	285.578	55.0	87.3
1995	171.834	-42.3	48.228	-83.8	220.062	-26.1	78.1
1996	65.100	-62.1	12.972	-95.6	78.072	-64.5	83.4
1997	32.697	-49.8	0	-100.0	32.697	-58.1	100.0
1998	39.649	21.3	1.169	100.0	40.818	24.8	97.1
Average		-7.8		-13.4		-4.9	87.6

Source: DSM Port Statistics and KPA 1994 and 1998 Annual Reports.

From Table 19 it can be observed that, in 1992, the volume of dry cargo through DSM port decreased while, at Mombasa port, it increased. In 1993, it increased at DSM port while, it decreased at Mombasa port. In 1994, it increased at both ports while, from 1995 to 1997, dry cargo from/to Burundi through the port of Dar-Es-Salaam and

Mombasa port, decreased at both the ports. The average growth rates of the traffic through the ports are –7.8% and –13.4% respectively. The total average growth rate is –4.9%. This declining trend shows that, the country's ability to generate dry cargo is decreasing. The decrease contributes to the declining dry cargo through Dar-Es-Salaam port.

The share of cargo passing through DSM port was 91.7% in 1991 while in 1998, it was 97.1%. From 1992 to 1996, there was a decrease of an average of 9.3% in the share. DSM port lost cargo to Mombasa port in 1992. In 1993, Mombasa lost cargo to DSM port. In 1994, growth in the volume of cargo was higher at Mombasa port. In 1997 and 1998, the share increased. On average, the share of the country's dry cargo through DSM port is 87.6%. More of the country's cargo pass through DSM port. This is because, DSM route offers shorter distances than Mombasa route. For example, the distance from DSM to Bujumbura by rail via lake Tanganyika is 1430 Kms, by rail/road via Isaka is 1854 kms and by road only via Lushaunga is 1821 Kms while, the distance from Mombasa via Isebania is 2156 Kms (Chiwala, 1989). Another advantage of DSM port over Mombasa is that, cargo pass through one border while, cargo through Mombasa passes through more than one border.

Reasons for the decreasing ability by this country to maintain/ increase the traffic generation are as follows:

- Civil war and political instability in the country.
- Trade embargo against Burundi for violation of human rights.
- The economy of the country has been declining. From 1990 to 1997, the growth rates in total GDP, Agricultural GDP and Industrial GDP had been negative (see Appendix D1). In 1997 and 1998, the economy started to pick up however, it was less than the GDP for each year from 1991 to 1995 (see Appendix D2).

4.5.2.2 Dry Cargo Generation by the Democratic Republic of Congo

Dry cargo generated by this country is shown in Table 20. This Table indicates that, in1992 and 1997, dry cargo from the country through DSM port decreased by 35.5% and 44% while, at Mombasa port it increased by 77.5% and 43.2% respectively. In 1994 and 1998, cargo decreased at both ports. In 1996, dry cargo through DSM port increased by 22.1% while, at Mombasa port, it decreased by 70.1%. The market share of the cargo through DSM port has decreased. The largest share was in 1991, it was

Table 20. Dry Cargo from/to DRC through DSM Port and MombasPort and Share of the Cargo through DSM Port

Year	DSM	Trend %	Mombasa	Trend %	Total	Trend%	Share %
1991	146.487		59.458		205.945		71.1
1992	94.535	-35.5	105.519	77.5	200.054	-2.9	47.3
1993	136.211	44.1	284.549	169.7	420.760	110.3	32.4
1994	71.429	-47.6	142.992	-49.8	214.421	-49.0	33.3
1995	125.365	75.5	260.332	82.1	385.697	79.9	32.5
1996	153.068	22.1	77.932	-70.1	231.000	40.1	66.3
1997	85.746	-44.0	111.618	43.2	197.364	-14.6	43.5
1998	64.335	-25.0	70.270	-37.0	134.605	-31.9	48.0
Average		-1.3		27.0		16.5	46.8

Source: DSM Port Statistics and KPA 1994 and 1998 Annual Reports.

71.1%. In 1998, the share was 48%. On average, the share is 46.8%. There are occasional shifts of cargo between the ports. However, more cargo pass through Mombasa port. This is the case because, of better transport infrastructure of the Mombasa route.

In 1997 and 1998, the total volume of dry cargo decreased by 14.6% and 31.9% respectively. In 1998, cargo declined at both ports. The volume of dry cargo through the two ports was 65.4% less than in 1991. The average growth rates were –1.3%, 27% and 16.5% for DSM port, Mombasa port and the total volume. The declining ability of the country to generate dry cargo and, the loss of cargo by DSM port to Mombasa are contributing to the declining dry cargo volume through DSM port.

Reasons for the declining ability to generate dry cargo by the Democratic Republic of Congo are as follows:

- War which is going on in the country.
- The economic development is poor. From 1990 to 1995, growth rates in total GDP and Agriculture GDP had been negative. GDP for Industry was positive. Between 1990 and 1997, Industry GDP was negative while, for Agriculture it was positive (see Appendix D1). In 1996 and 1997, there was a positive growth in the economy while, in 1998, there was a negative growth (see Appendix D2).

4.5.2.3 Dry Cargo Generation by Rwanda

Table 21 shows dry cargo generated by Rwanda.

Table 21. Dry Cargo from/to Rwanda through the Port of DSM anMombasa port and Share of Cargo through DSM Port

Years	DSM	Trend %	Mombasa	Trend %	Total	Trend %	Share %
1991	47.051		101.661		148.712		31.6
1992	46.144	-1.9	113.458	11.6	159.602	7.3	29.0
1993	159.092	244.8	124.407	9.7	283.499	77.6	56.1
1994	99.795	-37.3	177.966	43.1	277.761	-2.0	36.0
1995	103.051	3.3	493.569	177.3	596.620	114.8	17.3
1996	103.618	0.6	795.614	61.2	899.232	50.7	11.5
1997	108.285	4.5	166.962	-79.0	275.247	-69.4	39.3
1998	60.394	-44.2	94.372	-43.5	154.766	-43.8	39.0
Average		21.2		22.6		16.4	32.5

Source: DSM Ports Statistics aand KPA 1994 and 1998 Annual Bulletins

In 1992 and 1994, the volume of dry cargo through the port of DSM dropped by 1.9% and 37.3% while, at the Mombasa, it increased by 11.6% and 43.1% respectively. In 1997, it increased by 4.5% at DSM port while, at Mombasa port it decreased by 79%. The average growth rates are 21.25% and 22.6% respectively. The share of the drycargo for Dar-Es-Salaam port was 31.9% in 1991. In 1995 and 1996, the share decreased to 17.3% and 11.5% respectively. The reason for the decrease was that, Mombasa port was able to attract more cargo than, DSM port and not because, DSM

port lost cargo to Mombasa port. In 1997 and 1998, the share increased to 39%. The average share is 32.5%. More cargo pass through Mombasa port despite the fact that, the route has the longest distance because, the route offers all roads transport and roads are better. The distance from DSM to Kigali by rail/road via Isaka is 1521 Kms and by road only via Lushaunga is 1529 Kms while, the distance from Mombasa by road only via Isebania is 1864 Kms. Another reason for more cargo to pass via Mombasa is that, the country exports tea through Mombasa because, there is an auction for tea .

The trend of the total volume of dry cargo from this country shows that, in 1997 and 1998, it dicreased by 69.4% and 47.8% respectively. This situation indicates that, the country's ability to produce dry cargo is declining. The decline contributed to the decline of dry cargo throughput at DSM port . However, the decline in 1998, did not contribute to a 3.9% (see Table 1.2.1) decline in dry cargo throughput at DSM port during the year as compared to 1991 because, the volume of cargo from the country in 1998 was higher than that of 1991.

Reasons for the declining ability of the country to generate dry cargo are as follows:

- Civil war and political instability.
- The performance of the economy is not good. From 1990 to 1997, the yearly average growth rates in total GDP, Agriculture GDP and Industry GDP were negative. They were –12.8%, -10.8% and –17% respectively (see Appendix D1). Looking at Appendix D2, it can be observed that, in1993 and 1994, The GDP declined. From 1995 to 1998, GDP picked up but, it was less than the GDP in 1991, 1992 and 1993.

4.5.2.4 Dry Cargo Generation by Uganda

Imports and exports to/from Uganda are indicated in Table 22**.**

Table 22. Dry Cargo from/to Uganda through the Port of DSMombasa Port and Share of Dry Cargo through DSM Port

Years	DSM	Trend %	Mombasa	Trend %	Total	Trend %	Share %
1991	43.374		303.200		346.574		12.5
1992	16.348	-62.3	467.146	54.1	483.494	39.5	3.4
1993	17.247	5.5	475.968	1.9	493.215	2.0	3.5
1994	44.217	189.3	915.600	92.4	959.817	94.6	4.6
1995	57.506	30.0	1.055.843	15.3	1.113.349	16.0	5.2
1996	71.987	25.2	1.212.758	14.9	1.284.745	15.4	5.6
1997	83.135	13.4	871.518	-28.1	954.653	-25.7	8.7
1998	51.687	-37.8	841.901	-3.4	893.588	-6.4	5.8
Average		20.4		18.4		16.9	6.2

Source: DSM Port Statistics and KPA 1994 and 1998 Annual Reports.

Table 22 shows that, in 1992, dry cargo for Uganda through Dar-Es-Salaam port decreased by 62.3% while, at Mombasa port, it increased by 54.1%. This means that, DSM port lost cargo to Mombasa port. Its cargo share decreased from 12.5% to 3.4%. From 1993 to 1997, dry cargo through the port had been growing. The rate of increase of Ugandan cargo through DSM port had been higher than the rate at Mombasa port. The average growth rates are 20.4% and 18.4% respectively. In 1997, the volume of dry cargo at DSM port increased by 13.4% while at Mombasa port, it decreased by 28.1%. In Freght (Aug/Sept,1989) it is said that, `improved transit times of the DSM route coupled with delays at Mombasa port are encouraging more Ugandan shippers to move to DSM port. From 1993 to 1997, the share of the cargo through Dar-Es-Salaam port had also been improving. On average, the share is 6.2%. In 1998, the traffic decreased at both ports. At DSM port, it decreased by 37.8% while at Mombasa port, it decreased by 3.4%. However, the decrease did not contribute to a 3.9% decline in the volume of dry cargo throughput at DSM port in 1998 as compared to 1991 because, the volume of dry cargo from/to the country in 1998 was higher by 19.2% than in 1991.

The total dry cargo through the two ports had been positive from 1991 to 1996. In 1997 and 1998, it decreased. The average total growth rate is 16.9%. This portrays

1997 and 1998. As Mc. William (January, 1998) reported, ``Uganda's economy is growing fast´´. From Appendix D1 and D2, it can also be observed that, Uganda's economy is growing. Between 1990 and 1995, the yearly average total GDP was 6.6% while, between 1990 and 1997, it was 7.2%. Growth rates in Agriculture GDP and Industry GDP had been positive too. Hence, its traffic generation is expected to grow. Generally, Uganda's cargo do not contribute to the declining dry cargo throughput at Dar-Es-Salaam port.

Uganda's main export commodity is Coffee and major import is oil. A larger part of its cargo pass through Mombasa port because, transport infrastructure to the country is better and distance is shorter. The distance to Kampala from Dar-Es-Salaam by rail via lake Victoria is 1521 Kms while, the distance from Mombasa by road is 1170 Kms and by rail via lake Victoria is 1242 Kms.

4.5.3 Dry Cargo Generation by Zambia and Malawi.

Dry cargo generated by these two countries which, are in the southern part of Tanzania

Table 23. Dry Cargo from/to Zambia and Malawi throug DSM Port. (in Metric tons)

Years	Zambia	Trend %	Malawi	Trend %	Total	Trend %
1991	549.009		142.606		691.615	
1992	939.386	71.1	145.309	-1.9	1.084.695	56.8
1993	664.101	-29.3	141.801	-2.4	805.902	-25.7
1994	526.624	-20.7	31.863	-77.5	558.487	-30.7
1995	422.733	-19.7	11.851	-62.8	434.584	-22.2
1996	298.638	-29.4	13.058	10.2	311.696	-28.3
1997	275.134	-7.9	9.006	-45.0	284.140	-8.8
1998	237.246	-13.8	5.572	-38.1	242.818	-14.5
Average		-6.2		-26.7		-9.2

Source: DSM Port Statistics.

is shown in Table 23 and Figure 9. Table 23 and Figure 9 indicate that, the trend of dry cargo from/to Zambia has been constantly declining from 1993 to 1998. The trend

of Malawi cargo has also been constantly declining from 1992 to 1998 except in 1996. In 1996, Malawi cargo increased by 10.2%. The average trends are, -6.2%, -26.7% and –9.2% for Zambia cargo, Malawi cargo and total dry cargo respectively. These declining trends are obvious contributing factors for the declining dry cargo throughput at the port of Dar-Es-Salaam.

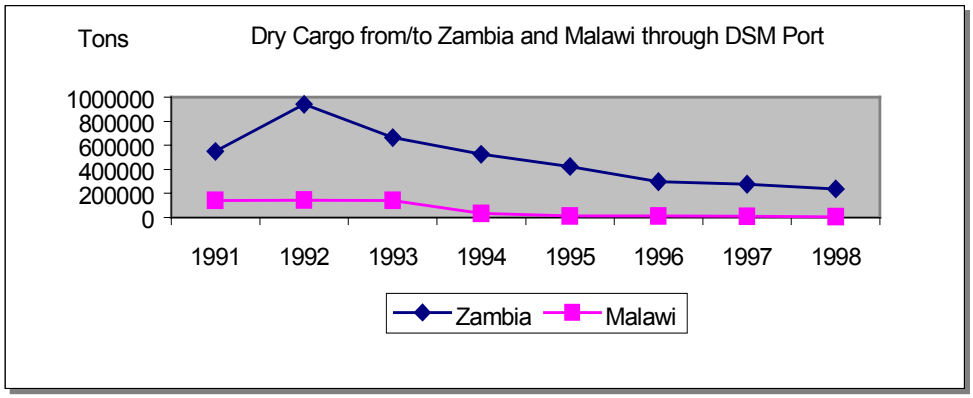


Figure 9.

Reasons for declining cargo from/to Zambia are as follows:

- Production of copper which is the country's main export has decreased. In early 1990s, Zambia was producing 6000 tons of copper per year, now it is producing 3000 tons per year (Kinunda, A., official communication, 15/12/1999). This is because, ores with copper have been exhausited.
- Competion from South African ports especially, the port of Durban. From 1994, after the end of civil war in Mozambique and after the end of apartheid regime and trade embargo against South Africa in 1993, competition has become severe. DSM port is losing Zambian dry cargo to ports in southern part of Africa especially, Durban port. In THA Corporate Strategy (1997/98-2000/2001) it is written that, part of Zambia cargo is now passing through Durban because, of high frequency of service at the port. Shippers from Zambia fail to meet vessels schedules at DSM port due to long transit time to the port. Durban port besides its competitve advantages explained in chapter three, it has a location advantage as explained

under 4.3.2.2., Due to good overland connections with the port's hinterland, travel time from the port to the copper belt is shorter. It takes 7 days by road from the copper belt to the port of Durban while it takes 10 days from the copper belt to DSM port. Ocean freight from Europe to the port of Durban is cheaper than to Dar-Es-Salaam port. For example, in 1998, freigth to DSM was 100 USD while, freigth to Durban was 90 USD per TEU. The advantage of DSM port over ports in South Africa and Mozambique is that, the distance from the port is shorter. (Kinunda, A. 15/12/1999).

- The general performance of Zambia's economy is poor. This can be observed from Appendix D1. Between 1990 and 1995, its total GDP growth rate was 0.2% while, between 1990 and 1997, it was –0.5%. The growth rates of Agricultural and Industry are negative during the whole period. Looking at Appendix D2, it can be noted that, in 1992, 1994, 1995 and 1998, the country's GDP declined.

Reasons for declining dry cargo from/to Malawi are as follows:

- Like Zambia, after the end of civil war in Mozambique and after the end of trade embargo against South Africa, DSM has lost Malawi cargo to the ports in the southern part of Africa. The country's traditional ports are Beira and Nacala in Mozambique hence, the country has gone back to its traditional ports. Dry cargo at Beira port is increasing. For example, in 1997, it increased by 11% over the previous year. (Freight & Trading Weekly, 14/2/1997). Ports in Mozambique have a distance advantage over DSM port. The distance from the ports in Mozambique to Malawi is shorter than the distnce from Dar-Es-Salaam port. The distance from Durban port to Malawi is longer than from Mozambique ports and DSM port. The comparison is shown in Table 24.

Table 24. Distance from Malawi Cities to DSM port, Durban and Ports in Mozambique

Ports	Lilongwe	Blantyre
Dar-es-salaam	1594	1772
Durban via Zimbabwe & Zambia	3497	4085
Beira	1108	640
Nacala	389	807

Source: Chiwala, S. W. F. M. (1989).

Another advantage of the ports in Mozambique is that, there is better transport connection between Beira port and Malawi than with Dar-Es-Salaam. There is railway and road tranport from Beira to Malawi while, from Dar-Es-Salaam to Malawi, there is only road transport as a direct transport. In case railway transport is used, cargo transfer from railway wagons to road transport has to be done in Mbeya.

Malawi, besides shifting its cargo to its traditional ports in Mozambique, part of its cargo is now being transported through the port of Durban. It is reported that, 50% of Malawi tobacco is exported through Durban (THA Corporate Strategy, 1996/97-2000/2001). Currently, only a few importers and exporters from the northern part of Malawi are still using Dar-Es-Salaam port (Kinunda, A. personal communication, 15/12/1999).

Malawi's economy is growing. Between 1990 and 1995, the average growth of its total GDP was 0.7%. Growth in agriculture GDP was 1.7 while, that of Industry was 0.4%. Between 1990 and 1997, the growth rate of total GDP was 3.6. Growth rates in Agriculture and Industry were 4.7% and 1.9% respectively (see Appendix D1). Looking at Appendix D2 it can be observed that, the country's economy is growing except in 1994. The economic performance of the country was not a cause for the declining dry cargo to/from the country through DSM port.

4.6 Marketing Strategies Used by the Port and the Port Community

The aim of the marketing straregies is to make sure that, the port maintains its market share despite the fact that, cargo is declining. The aim is also to increase the volume of cargo where possible. The strategies the port uses include the following:

i. *Being close to the market*. The port believes that, the main strategy for maintaining the market is being close to it. This is done through:

- THA, TRC and NASAKO have established their marketing offices in Kampala.
- In the southern market, they have established a Transport Co-odinating Committee (TCC). This committee is comprised of members from Zambia, Malawi, Congo and Tanzania. Members from Tanzania include representatives from THA, TAZARA, TRC and Customs. The committee meets every three months to discuss about transport problems and development. Its objective is to ensure that, cargo from these countries do not face transport bottleneck.
- They visit the port's major customers and try to find out their needs with the aim to satisfy them.
- They participate in the port's customers' annual trade fairs.

ii. *Monitoring of competition*. The port monitors competition in order to find out what competitors are doing so that, it can adjust itself accordingly. For example, when competitors charge lower rates, they ajust their rates. However, sometimes, efforts by the port to adjust itself so that it can maintain customers and attract others is hampered by other players like overland transport operators, those responsible for construction and maintainence of roads and the customs. For instance, when the port adjusts its rates while railway transport and road transport operators do not adjust theirs, adjustment of charges by the port becomes no much useful.

iii. The port has a tariff book however, its *rates are negotiable.*

iv. An *inland container depot* for Uganda cargo is established at Ubungo.

v. *Through freight* is established between the port and TRC.

vi. An *inland dry port* is established at Isaka for Burundi and Rwanda cargo

vii. Representatives of the port community meet to discuss problems affecting their customers and how to solve them.

4.7 **Summary**

From the analysis done in this chapter, it has been identified that, generally, Dar-Es-Salaam port is not losing cargo to/from the Great Lakes countries to Mombasa port. In 1991 and 1992, it lost some cargo to Mombasa port while, during the rest of the years, there are occasional shifts of cargo from DSM to Mombasa and vice-versa. However, more cargo from these countries except Burundi, pass through Mombasa port because, of better transport infrastructure. The volume of dry cargo through the port is declining because, the ability to generate cargo by Burundi, the Democratic Republic of Congo and Rwanda is declining. Reasons for declining cargo volumes from these countries are mainly war, political instability and poor economic development. Dry cargo throughput at the port of Dar-Es-Salaam is declining because of the declining cargo volumes from/to Zambia and Malawi too. Dry cargo from/to these countries has been constantly declining. The declining volumes of dry cargo from/to these countries is the main cause of the declining throughput at DSM port.

Dry cargo from/to Zambia is declining because, production of copper is reduced, the coutry's economic development is poor and some of its cargo is now passing through the south African ports particularly, the port of Durban. Dry cargo from/to Malawi is declining because, the country has shifted to its traditional ports in Mozambique and, some of its cargo is passing through the port of Durban decline.

Dry cargo from/to Tanzania and Uganda through the port is increasing. Hence, these countries do not contribute to the declining dry cargo throughput at Dar-Es-Salaam port.

CHAPTER FIVE
CONCLUSION AND RECOMMENDATIONS

This chapter is divided into two main parts including conclusion and recommendations. The conclusion part explains briefly, the aim of the research and provides the findings of the research. The recommendations part gives suggestions on what should be done in order to improve the trend of dry cargo throughput at Dar-Es-Salaam port.

5.1 Conclusion

The trend of dry cargo throughput at DSM port has been declining, this study aimed at finding out the contributing factors to the decline. Two factors were thought to be the possible causes of the declining throughput.

i. Poor quality of service at the port, making it lose cargo to its competitors.
ii. Poor ability of the port's hinterland to generate dry cargo.

The analysis done in this dissertation aimed at proving whether, these two possible factors are actually contributing to the declining dry cargo throughput at the port or not. Based on the analysis, the following conclusions are drawn from the research:

1. The quality of service in terms of productivity, ship time in port, container dwell time, cargo security and customer service at the port is poor that is, the services provided at the port can not satisfy the port's customers.
2. The quality of service at the port of DSM is more or less the same to the qualiy of service at Mombasa port. This being the case, the port is not losing cargo to the

port of Mombasa. However, more dry cargo from and to DRC and Rwanda is passing through the port of Mombasa despite the fact that, the DSM route offers single border crossing and shorter distances. This is because, Mombasa route's transport infrastructure is better. More Uganda dry cargo is also passing through Mombasa port because, of the route's better transport infrastructure and its distance is shorter.

3. The quality of service at the port of DSM is very low compared to the quality of service at the port of Durban. This being the case together with other advantages of Durban port like high frequency of shipping services, DSM port is losing Zambia and Malawi dry cargo to the port of Durban despite the fact that, DSM route offers single border crossing and shorter distances. Dry cargo from and to these countries is declining every year at high rates, the decline is the main cause of the declining dry cargo throughput at DSM port.
4. The trend of Zambia dry cargo through the port of Dar-Es-Salaam is also declining because, the country's ability to generate dry cargo especially copper which, is its main export commodity has decreased. However, Zambia is still the second largest user of the port.
5. The trends of cargo from and to Burundi, DRC and Rwanda through DSM port and the port of Mombasa are declining. Hence, dry cargo throughput at DSM port is declining because, the ability of this part of its hinterland to generate the cargo is decreasing.
6. The volumes of dry cargo from and to Tanzania and Uganda are increasing. Hence, they do not contribute to the declining dry cargo throughput at DSM port.

5.2 Recommendations

The marketing efforts which are being undertaken by the port of Dar-Es-Salaam are appreciated. In additional to what is being done in order to maintain the port's market share, the following recommendations should also be implemented.

1. Improvement of the quality of service

The port should improve the quality of service in order to ensure that, it does not lose cargo to its competitors. Improvement of the quality of service is also imperative for attracting more cargo to the port. The following should be done in order to improve the performance:

i. The port and the port community workers should change their attitudes towards customers. They should be educated about the importance to please customers. Policy on this, Malta Free Port company is a good example (see 2.3.5). All empolyees from the top to the bottom should be made aware that, their port's and their own survival depend on the availability of customers. They should also be made aware that, most of their customers are not captive customers, they have alternative ports which they can shift to, if they are not treated well. They should internalise the following words which, were said by Osman, M. S. (The Port of Tanjung Pelepas Booklet):

- Customers are our priority.
- Discipline, Knowledge and performance are our strengths.
- Working is our joy.
- Caring and Humility is our character.

ii. Equipment with high productivity should be acquired. With this kind of equipment, productivity and ship turn-round time will improve. Consequently, the port will be able to maintain its customers and attract more.These

improvements will attract mordern ships to call at the port which, will lead to further improvements in productivity.

iii. Waiting time should be reduced by doing the following:

- Proper planning and requisition of shore handling equipment. The equipment should be ready at the quay before a shift starts. This will eliminate waiting time for equipment.
- Consignees and shippers should be informed in advance on the time when their cargo will be discharged or loaded so that, lorries will be at the port to pick up cargo and, cargo will be at the port for loading in ships at the right times. In case this can not be easily achieved, direct delivery and receipt should be avoided. Cargo should pass through short-term storage. This will minimize waiting time for lorries and cargo.
- The port should explore the possibility of covering some of the berths like what has been done by the weather proof cargo handling company at the port of Amsterdam (see 2.3.9). This will enable cargo loading and discharging to be done under any kind of weather.

iv. Cargo dwell time should be reduced by doing the following:

- A possibility to simplify cargo documentation and clearance procedure should be looked at. A detailed study of the documents' contents and the clearance procedure should be done so that, improvements can be developed.
- Establish one place and only one place for documents clearance. All officials responsible for cargo clearance should be in the same house. This will facilitate quicker clearance of cargo documents.
- The port should move to a third generation port. It should introduce an Electronic Data Interchange system (EDI). Cargo tracing and monitoring should be done by softwares and the use of computers. This will facilitate quicker communication among all responsible parties for cargo documents clearance.

- Time allocated for processing cargo documents clearance should be increased. It should be done from 8:00 to 5:00. The problem of security of cash money can be solved by using cheques and credit cards for payments.
- Verification of cargo by customs should not be done by 100%. As a short-term solution, it should be done at random to about 50% . Those who will be found to have cheated about the particulars of their cargo should be severely punished. A high fine should be set. In case the fine can not be paid, cargo should be confiscated and auctioned. Officials who will be found to be colluding with consignees who cheat, should be expelled from work. As a long-term solution, a computerised customs clearance system should be applied.
- Higher storage charges than the charges in other storages in the city should be set by the port. This will help to discourage consignees to leave their cargo at the port for a long time. Cargo which is not collected after the grace period should be moved to a long-term storage.

v. Cargo security should be improved by use of cameras and computers to control and monitor the movement of cargo in stores and yards.

2. Other Marketing Strategies

i. The port community shoud lobby to the government for transport infrastrucure improvement. The government should always be reminded about the effects of poor state of the infrastructure to the port and the economy as a whole.

ii. The Government should be in a fore front to appeal to the international community to facilitate the achievement of peace in the war torne hinterland of the port.

iii. Tanzania Harbours Authority should advocate for establishment of a tea auction in Dar-Es-Salaam. This will help to attract tea exports from Rwanda.

iv. The port should apply CRM (see 2.2.3). It should establish a close relationship with its main customers The port should strive for satisfying special needs of each of its main customers.

- The port should encourage establishment of value added activities at the port by importers and exporters like packaging and repackaging, assembly of cars, crating and establishment of distribution centres. This will help to maintain customers at the port.
- The port and the port community should have quality assurance committees. The committees should include the port's main customers like what is done at Sea Malta Company (see 2.3.8).
- Some major customers of the port should be included in the Board of Directors of the port and others should be involved in joint consultation meetings.
- The port officials should continuosly carry out market research to find out developments in the market, who are decision makers for choice of ports and what influences their decisions. The port should be innovative, proactive and be able to quickly respond according to the needs of the market.

If all these will be implemented together with improved quality of service, improved transport infrastructure and transit times, Dar-Es-Salaam port will be able to attract more customers and improve its trend of dry cargo throughput. Otherwise, the trend of dry cargo throughput at the port will become worse. Cargo from/to the landlocked countries will pass through south African ports particularly, the port of Durban. Cargo will not go to DSM port. Without improvement in the transport infrastructure, Mombasa port will continue to have a larger share of the market than, DSM port.

BIBLIOGRAPHY

Alderton, P. M. (1995). Sea transport: Operations and economics. London: Thomas Reed Publications.

Blauert, C. (2000). Comparison of different operational systems, terminal logistics and control/simulation. Unpublished lecture handout, World Maritime University, Malmö, Sweden.

The BLG in Bremen and Bremerhaven booklet. (1998). Bremen: Author.

Brian, J. T. and Rochi, D. K. (1995). Operating and maintenance features of container handling systems. Geneva: United Nations Conference on Trade and Development.

Chiwala, S. W. F. M. (1998). An evaluation of trade routes of Malawi. Unpublished Master's thesis, World Maritime University, Malmö, Sweden.

Crook, G. (2000). Container terminal planning: Improving port performance. Unpublished lecture handout, World Maritime University, Malmo, Sweden.

Dar-Es-Salaam port (1991-1998). Dar-Es-Salaam port statistics. Dar-Es-Salaam: Author.

East Africa seeks aid to repair roads. (1998, June 28). Daily News, p.1.

East Africa. A Lloyd's List special report. Tanzania transforms agencies. (2000, March 24). Lloyds List: Retrieved March 24, 2000 from the World Wide Web: http:/www.Iiplimited.com/II/1124320000/p19sl.html

East Africa. KPA officials' reform effort praised. (2000, May 29). Retrieved May 29, 2000 from the World Wide Web: http:/www. Nationaudio.com/News/East Africa/Current/Maritime/MAI.html

Factors Affecting Choice of Port (2000). Unpublished handout, Rotterdam.

Fifield, P. and Payne, A. (1998). Business Guide: Customer relatioship management. England: Caspian Publishing.

Francou, B. (2000). Port performance indicators. Unpublished lecture handout, World Maritime University, Malmö, Sweden.

Freight. (August/September, 1998). Uganda petitions Mombasa to ease congestion.

Gray, R. (2000). International Logistics Management. Unpublished lecture handout, University of Plymouth., Institute of Marine Studies, United Kingdom.

Grimwade, N. (1998). Internationa trade. London: Routledge.

Horck, J. (2000). Time in port and port productivity: General cargo operation. Unpublished lecture handout, World Maritime University, Malmö, Sweden.

P & O Ports to bail out Portnet. (2000, April 6). Fairplay, 338 (6066), 16.

Port of Beira handles more cargo. (1997, February 14). Freight and Tradind Weekly. Retrieved July 7 2000 from the World Wide Web: http:/cargoinfo.co.za/ftw/97/97fe 14g.html

Kenya Port Authority. (1994,1998). Annual bulletins. Mombasa: Author.

Lodder, O. (1997). How to select a port. Unpublished lecture handout, Rotterdam Municipal Port Management, Rotterdam.

Ma, S. (2000). Port marketing. Unpublished lecture handout, World Maritime University, Malmö, Sweden.

Magnussen, Ø. (2000, April 2) Enterprise CRM. Retrieved April 2, 2000 from the World Wide Web: http://www.Milliohandshakes. Com/Articles/News/enterprise-crm.html

Malta Free Port. (1998). Annual review. Valleta. Author.

Port of Durban. South Africa Statistics. (2000). Retrieved July 2, 2000 from the World Wide Web: http:// www. Portinet. Co. za/durban STATIS 4. HTML

Port of Hamburg. (1998). Annual report. Hamburg: Author.

Port reforms: Port Management Models and Port Privatisation Processes. Unpublished lecture handout (2000). Rotterdam.

Portia Management Services (1998). Efficiency at Durban port container terminal. Unpublished resarch report. Durban: Author.

Port of Rotterdam. (1998). Rotterdam Municipal Port Management. Annual Report. Rotterdam: Author.

The promotional contenders. (1999 , September/October). Llyod's Port Management,p. 37.

Port of Tanjung Pelepas Booklet. Cutting the edge. Tanjung: Author.

Puerto Bahia de' Algeciras Magazine. (1998, september 15). Puerto: Author.

Reji, G. (1999). Techno-economic viability for development of two additional dry cargo berths at kandla port for private sector investment. Unpublished thesis, World Maritime University, Malmö, Sweden.

Repair of roads, rail links vital to economy. (1998, May 25). Daily News, p. 1.

Sea Malta Corporation. (1998). Annual report. Valleta: Aothor.

Stopford, M. (1997). Maritime economics. London: Routledge.

Swedish Port's and Stevedores' Association (2000). Regional ports planning seminar. Unpublished lecture handout, World Maritime University, Malmö. Sweden.

TAFFA complains about cargo clearance delays at Dar-Es-Salaam port. (1998). East Africa, p. 2.

Tanzania Habours Authority. (1996). Corporate Strategic Plan. 1996/97 - 2000/2001. Dar-Es-Salaam.

Taylor, L. G. (1985). The management of cargo control. Glasgow: Brown, Son & Ferguson.

United Nations Conference on Trade and Development, (1995). Monographs on port management: Tools for port marketing. Geneva: United Nations.

Who will Repair Mombasa Road? (1999, June/July). Kenya Transporter.

William, F. (1999, January.). Africa looks to the future. Geographical: The Magazine that explores the World, 32.

World Bank. (1997). World Bank Annual Book: World Development Indicators. Washington D. C.: Author.

World Bank. (1999). World Bank. Annual Book: Word Development Indicators. Washington D. C.: Author

APPENDIX A

Questions for Dar-Es-Salaam Port Officials.

1. What is your dry cargo throughput for the past eight years?

2. What is your port's annual dry cargo capacity?

3. What is the your performance for the past eight years (various dry cargo performance indicators)?

4. What is the hinterland of the port?

5. What are your competing ports?

6. What is the trend of your market share?

7. What are your competitive strengths in relation to your rival ports?

8. Are there any customers complaints about the quality of your services and cargo security? What is the amount of losses and damages?

9. What are your marketing strategies?

APPENDIX B

Holding/Pending Claims in '000 TShs at Dar-Es-Salaam Port.

January-June, 1998.

Claims handling Stage	January	February	March	April	May	June	Average
Claims for settlement	246.020 (410.033 USD)	233.029 (3 88.381 USD)	233.029 (388.381 USD)	233.029 (388.381 USD)	233.029 (388.38 1 USD)	240.978 (401.630 USD)	236.519 (394.198 USD)
Claims for payment approval	14.685 (24.475 USD)	14.685 (24.475 USD)	14.685 (24.475 USD)	14.685 (24.475 USD)	14.685 (24.475 USD)	14.685 (24.475 USD)	14.685 (24.475 USD)
Claims awaiting response from oper. Depart.	227.883 (379805 USD)	149.721 (249.535 USD)	149.721 (249.535 USD)	205.759 (342.931 USD)	205.759 (342.93 1 USD)	206.774 (344.623 USD)	199.269 (332.115 USD)
Claims still under investigation	443.942 (739.903 USD)	433.942 (739.903 USD)	416.817(694.695 USD)	436.849 (728.081 USD)	452.478 (754.13 0 USD)	425.488 (709.146 USD)	434.920 (724.866 USD)

Source: DSM Port Commercial Department.

APPENDIX C

Claims in '000 KShs Arising from Missing Cargo at Mombasa Port

Claims brought forward from 1997	Claims lodged in 1998	Claims paid in 1998	Claim declined as At 31/12/1998
35.105 KShs (583.508 USD)	99.274 KShs (1.650.457 USD)	67.103 KShs (1.117.935 USD)	61.761 KShs (1.117.935 USD)

Source: KPA Annual Bulletin, 1998.

APPENDIX D1

Percentage Change in Economic Growth

COUNTRIES	1990 to 1995			1990 to 1997		
	GDP	ADDED VALUE		GDP	ADDED VALUE	
		Agriculture	Industry		Agriculture	Industry
Burundi	-2.3	-4.1	-5.0	-3.7	-2.8	-8.0
DRC	-0.6	-0.9	1.2	-6.6	3.0	-15.9
Malawi	0.7	1.7	0.4	3.6	4.7	1.9
Rwanda	-12.8	-10.8	-17.0	1.7	-	-
Tanzania	3.2	4.1	8.4	-	-	-
Uganda	6.6	3.8	4.0	7.2	3.8	13.0
Zambia	0.2	1.7	0.4	3.6	4.7	1.9

Source: World Bank Development Reports, 1997 and 1998/99

APPENDIX D2

GDP in Million Dollars Constant 1995 Prices

Country	1991	1992	1993	1994	1995	1996	1997	1998
Burundi	1.169	1.177	1.110	1.076	1.000	0.914	0.918	0.959
DRC	8.457	7.569	6.549	6.294	6.338	6.281	5.923	6.101
Rwanda	1.973	2.089	1.919	0.969	1.326	1.486	1.648	1.813
Zambia	3.503	3.442	3.677	3.550	3.470	3.695	3.822	3.746
Tanzania	4.664	4.249	4.768	4.834	4.958	5.160	5.367	5.552
Uganda	4.330	4.478	5.851	5.161	6.756	6.278	6.576	6.944
Malawi	1.400	1.297	1.423	1.277	1.465	1.621	1.703	1.755

Source: World Bank Development Reports

APPENDIX E

Stevedoring, Wharfage and Storage Charges (1996) at DSM, Mombasa and Durban Port (For High Value Goods)

Cargo	Stevedoring	Wharfage	Storage Charges/Day
1. Containers	20ft : USD 80	Imports:	
(DSM port)	40ft : USD 120	20ft : USD 240	
		40ft : USD 480	
		Exports:	
		20ft : USD 200	USD 20/TEU
		40ft : USD 400	
2. Dry Break-Bulk	USD 5/HT	Imports:	
(DSM port)		USD 14/HT	USD 1/HT
		Exports:	
		USD 12/HT	
1. Containers			
(Durban port)	20ft: USD 67	Imports/Exports	
	40ft: USD 100	20ft: USD 30	N/A
2. Dry Break-Bulk		40ft: USD 60	
(Durban port)	USD 7/HT	USD 1.5/HT	N/A
1. Containers		Imports.	
(Mombasa port)	20ft: USD 100	20ft: USD 150	
	40ft: USD 120	40ft: USD 180	
		Exports:	
		20ft: USD 100	
		40ft: USD 120	
2. Dry Break-Bulk			
(Mombasa port)	USD 5/HT	Imports/exports	
		USD 8/HT	USD 1/HT

Source: DSM, Durban and Mombasa port's Tariff books (1996).